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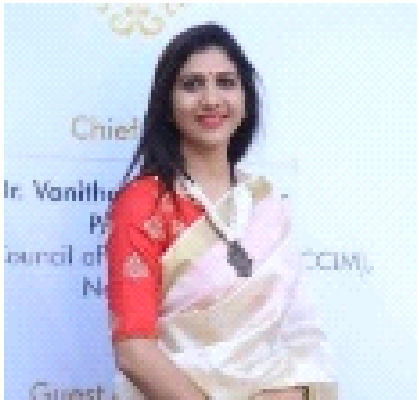

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FOREWORD

I feel honoured to be requested to write the foreword for this excellent work as special add on by the efforts from the Department of Agada Tantra evum Vidhi Vaidyak on conducting Pre International conference Nirjara 2021 under Azadi ka Amrut Mahotsav on 27/10/2021 presiding eminent guest speaker Dr Sushant Sud, Associate Professor, ITRA, Jamnagar.

I am indeed happy to write a foreword to the book which is combined efforts from the department of Agada Tantra evum Vidhi Vaidyak. It has taken a herculean task to compile this book after referring voluminous literature of past and present with reference to Geriatric practice: cure and care by the scholars. This is a genuine work compiling original references by the authors from Ayurveda and contemporary sciences. The description of pathology with clinical application of the concepts stand unique to this issue. The resources provide comprehensive knowledge about the subject prepared in accordance with the diseases, drugs involved and its etiopathogenesis. Ayurvedic system of medicine has been practiced in the country and globally from time immemorial and has stood the test of many adversities over centuries.

This book of special additional edition from the Department of Agada Tantra evum Vidhi Vaidyak will be a timely contribution to students, practitioners, scholars and researchers of ayurvedic medicine. The purpose of this book will be served by the progressive discussions and constructive feedbacks from the readers. I am sure the readers will be benefited immensely by this book. I wish the department to get more such opportunities to convert such intricate subject into an interesting and readable one.

Prof. Dr Hemant D Toshikhane Dean, M.S

Faculty of Ayurved, Parul University. Assessor NABH

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ROLE AND CURE OF XENOBIOTICS AND ENDOCRINE DISRUPTING CHEMICALS(EDC) IN AGEING W.S.R TO GARA VISHA

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Abstract

A xenobiotic is a chemical substance which is seen in an organism and is not naturally produced or expected to be present within the organism. It may be some harmful foreign body which entered the body in trace quantities, so that it will not kill the individuals promptly. Xenobiotics may be carcinogens like tobacco, various drugs which leave their residue without full metabolism, environmental pollutants which include soil, air or water pollutants like Industrial residues, food additives, food taste enhancers and food colours like MSG, hydrocarbon containing products, pesticide residue in food like unwashed fruits and vegetables etc. Xenobiotic can enter in the body through any possible route like ingestion, inhalation or absorption through skin surfaces. In Ayurvedic classics, we have clear idea about this trace quantity poisons in the name Gara visha. Treaties like Charaka Samhita, Susruta Samhita and Astanga Hridaya clearly and thoroughly mentions about this concept. Gara are the combination of poisonous or non-poisnous substances. This paper highlights the between the EDC(Endocrine Disrupting Hormones), its relation with Xenobiotics and gara visha. The relation between all these terms with the process of ageing and to study the possible formulations which are available in the Agadtantra which can prevent the process of ageing.

Keywords- Xenobiotics, EDC(Endocrine Disrupting Hormones), Gara visha, dushivisha.

Introduction

A xenobiotic is a chemical substance which is seen in an organism and is not naturally produced or expected to be present within the organism. It may be some harmful foreign body which entered the body in trace quantities, so that it will not kill the individuals promptly. Xenobiotics may be carcinogens like tobacco, various drugs which leave their residue without full metabolism, environmental pollutants which include soil, air or water pollutants like Industrial residues, food additives, food taste enhancers and food colours like MSG, hydrocarbon containing products, pesticide residue in food like unwashed fruits and vegetables etc. Xenobiotic can enter in the body through any possible route like ingestion, inhalation or absorption through skin surfaces. In Ayurvedic classics, we have clear idea about this trace quantity poisons in the name Gara visha. Treaties like Charaka Samhita, Susruta Samhita and Astanga Hridaya clearly and thoroughly mentions about this concept. Gara are the combination of poisonous or non-poisnous substances. It may be incompatable substances also. On the combination of two things, poisonous effect may arise like taking Fish and milk together. These

are mentioned as Virudhahara in our classical textbooks. Virudhaahara can also contribute to the development of gara avastha in the body1.

EDC or Endocrine Disrupting Chemicals is an exogenous chemical, or mixture of chemicals, that can interfere with any aspect of the hormone action. EDCs are very much available in the environment. Like the xenobiotics, it may enter the body through different routes and hampers the functions of the endocrine system. Endocrine system is the key centre for the production of various hormones in the body. Hormones are the chemical agents which regulate almost all the physiological activities of our body. Once the hormone action is disrupted, the body's normal functioning will be damaged2.

EDCs are assumed to be having direct involvement over the Endocrine system. It is not specifically identified the individuality or specific target areas of the EDC over the Endocrine production. Researches are going on over that. But certain Endocrine Disrupting Chemicals can work over the Hormones which are directly related with ageing process. Normal physiological changes of the body can deteriorate the cells and can cause ageing in a normal sense. But as far as Toxicology branch is concerned, if the health of the Endocrine system is maintained without affected by harmful chemicals especially the EDCs or Xenobiotics, the ageing can be prevented3. Better functioning of the hormones will delay ageing. It can be maintained through taking good food devoid of free radicals and which can maintain the antioxidant activity. Cellular senescence occurs in response to many different triggers, including DNA damage, telomere dysfunction, oncogene activation and organelle stress, and has been linked to processes such as tumour suppression, tissue repair, embryogenesis and organismal ageing. It is the need of the hour to find the relationship between EDC, Xenobiotics, Gara Visha, Dushi visha, Cellular Senescence and Geriatrics4.

Ayurved suggests various kind of Rasayana dravyas which are having role as Agadas like Ajita Agada, Mrutasanjeevana Agada, Ksharagada, Kalyanaka Agada etc. Agada are the formulations which can act against the poisons. Agada if we use for the purpose of Rasayana means these Agadas are having a role over the detoxication of the body's chemical substances and having maintenance of the health also. As per the view of a Toxicologist Detoxification and Nutrition, both are considered in the concern of Geriatric care and cure5.

Factors affecting ageing

1. Intrinsic genetic process
2. Environmental factors
3. Lifestyle of the individual
4. Age related diseases

Ageing is the process of growing old, with a number of transitions in the journey of life. As they grow old their physical and mental capacities decline and they are not able to manage their life as good as they were doing it earlier. The transitions may include retirement, relocation, death of spouse or friends, geriatric syndromes such as frailty, decline in physical activity, problems with memory and so on.

World Health Organization (WHO) states: “Active Ageing is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age”. Ageing is also defined as “the process during which structural and functional changes accumulate in an organism as a result of the passage of time. The changes manifest as a decline in peak fertility and physiological functions, until death.” Senescence and Ageing

Senescence is the progressive deterioration of cellular growth and decline in metabolic processes, through the passage of time. Senescence starts at the end of reproductive age and is also called as old age. Senescence is defined as reducing fertility and increasing the mortality. The concepts of aging are simply defined as the unavoidable passage of time, senescence the progressive physiologic impairment, and senility the pathological development of diseases.

There are several factors that contribute to ageing. These factors may be biological, life style, social, psychological, spiritual, and cognitive and the diseases in the old age. These factors may not only lead to ageing but also to several diseases in the ageing process.

Biological Factors

Several biological factors like genetics, temperature, glycation, metabolism and oxidation affects the ageing process of humans.

Genetics

The genes of humans are genetically programmed for ageing. The human genes consist of a protein called rapamycin that has been responsible for regulation in ageing and growth. There is genetic theory that longevity of life is determined by the longevity of their parents and grandparents and that identical twins have similar age span than fraternal twins.

Metabolism and Oxidation

The metabolism plays an important role in the regulation of ageing and growth. Metabolism produces reactive chemicals or oxidizing agents that may increase the ageing process due to the damage in cells.

Wear and Tear

The cells of an organism are always getting damaged and worn out on daily basis. But, sometimes, permanent damage occurs to more or less permanent basis that these cannot be repaired easily, leading to ageing6.

Gerontogens are the environmental agents which accelerates aging in animals, including humans. Gerontogens are normally toxic chemical agents, those found in cigarette smoke. Many other things can also act as gerontogens, including ultraviolet radiation, chemotherapy treatment, heavy metals like Arsenic, Mercury or lead chronic exposure.

Lifestyle manifestations like Tobacco smoking which is one of the exogenous agents in the production of free radicals that results in cell injury and chemo toxicity. Alcoholism, especially chronic alcoholism produces widespread injury to the organs and system. Chronic alcoholism can lead to free radical mediated injury and genetic susceptibility to alcohol

dependence and tissue damage. Regular exposure to chemicals via food, air and water are also accelerating to the problem in a wider sense.

Toxic Effects of Xenobiotics

Local and Systemic effects Local effects may be described as injuries caused by chemicals in biological system at the site of first contact. The local effects may be produced by caustic substances on gastrointestinal tract upon oral ingestion, by corrosive substances on the skin or by irritant gases and vapours on the respiratory tract upon inhalation

Immediate and Delayed effects

Several other chemicals produce effects after a lapse of some time. This type of effect is termed as delayed effects. Chemicals induce carcinogenic effects after a latent period of 20-30 years in human beings. This is an extreme example of delayed effects. Some organophosphorus anticholinesterase agents also cause delayed neurotoxicity.

Reversible and irreversible effects

Some chemicals produce adverse effects that disappear following withdrawal of exposure. This is known as reversible effect. Certain other alterations produced by other toxicants in the biological system do not disappear even after considerable time following withdrawal of the exposure. This type of effect either persists or progresses even when exposure is withdrawn and is termed as irreversible effect.

Basis of toxic effects

1. Toxic effects through interference in the activity of enzymes
2. Toxic effects through blockade of oxygen transport
3. Toxic effects through interference in the synthesis and functions of nucleic acids and proteins
4. Hypersensitivity and Allergy
5. Direct chemical irritation of tissues

Endocrine Disrupting Hormones (EDC)

The endocrine system is a network of glands and organs that produce, store, and secrete hormones. When functioning normally, the endocrine system works with other systems to regulate your body's healthy development and function throughout life. Endocrine-disrupting chemicals (EDCs) are substances in the environment (air, soil, or water supply), food sources, personal care products, and manufactured products that interfere with the normal function of your body’s endocrine system.

Some EDCs act like "hormone mimics" and trick our body into thinking that they are hormones, while other EDCs block natural hormones from doing their job. Other EDCs can increase or decrease the levels of hormones in our blood by affecting how they are made, broken down, or stored in our body. Finally, other EDCs can change how sensitive our bodies are to different hormones.

EDCs can disrupt many different hormones, which is why they have been linked to numerous adverse human health outcomes including alterations in sperm quality and fertility, abnormalities in sex organs, endometriosis, early puberty, altered nervous system function, immune function, certain cancers, respiratory problems, metabolic issues, diabetes, obesity, cardiovascular problems, growth, neurological and learning disabilities, and more.

EDC and Ageing Mechanism

EDC has demonstrated relation between Physiological activities. Study revealed

Relationship between menarche and Increased exposure to endocrine-disrupting compounds (EDCs) which in turn has been associated with adverse reproductive outcomes. In old age also, the dis function or poor production of Reproductive hormones like oestrogen, testosterone etc can relate with EDC, which accelerate the stress related factors thereby inducing, more to the psychological and physiological stress and become a provoking factor for ageing.

EDC and Xenobiotics

EDC and Xenobiotics can be co-relatable. Both are extrinsic chemicals which are not supposed to be present in the human body. These can be counted as the chemicals which can hamper the normal functioning of the body's physiology affecting hormonal as well as cellular level7.

Gara Visha

Gara visha is the artificial poison which normally affects the body mildly over years. Once the saturation limit of the poison is attained, the poison start showing signs and symptoms. Gara visha is slow poison, in a short period it cannot show impact over the health. Once accumulated over a particular organ like liver for a period of time, then it will start showing the signs and symptoms like carcinoma.

Dushi visha is the next level of gara visha. If the gara reaches deep into the dhatus with considerable and favourable environmental factors, it may lead to the total destruction of the body under the name of dushi visha.

Gara affecting body organs

Mahodara, yakrut and pliha are considered to be the main location of the gara visha to act. As per the corelation to the EDC, the mahodara may be the Gut-Brain Axis. The Gut-Brain axis is the main hub of all the hormones of the body. Body's biological clock, the pineal gland like features is lodged over there. If the gara is in its peak, the normal biological activities will get hampered and the problems like physiological and psychological problems may arise. It affects ageing, sleep, sexual responses etc8.

Cure through Agadtantra

Agadatantra is the branch of Ayurveda dealing with the diagnosis, treatment and prevention of poisoning. Agadtantra has a lot of medicines which can even prevent the mrityu. The subject deals with a medicine called as the Kalyanka ghrita which can be used as a rasayana, or rejuvenator. Proved drugs like Vatsanabhi, bhallataka etc has rasayana property. The other

treatment methods like the Vamana, Virechana, Pathya sevana etc can also resort to a healthy body without toxins9.

Other drugs like Ajitha Agada, Mruta sanjeevana Agada, Vishahari leha, Vilwadi Ghruta etc can be used for long term use in the view of Rasayana property. The Agada formulations have the property of detoxification and rejuvenation. So that cleaning the toxins from the body and nourishing the tissues of the body. This is the superiority of the Agadas in general compared to the normal Rasayana Dravyas in the concept of ageing10.

Conclusion

Xenobiotics and EDC are having a great role in the process of ageing. If a foreign chemical is acting over the normal pathway of the body's physiological process, it can mimic or counter act the normal functional mechanism. If the wrong metabolite is formed after the metabolism it can impact adversely. Cellular senescence and ageing mechanism can also be counted in this. By using the concept of Gara visha, the Agada can have a great role in the cure of ageing. Agadas by virtue of its detoxifying and rejuvenating properties can prevent ageing effectively.

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DOOSHIVISHARI AGADA IN PREVENTION, CARE, AND CURE OF CARCINOMA

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Abstract

Cancer is a disease in which some of the body's cells grow uncontrollably and spread to other parts of the body by destroying normal body tissue. Cancer is the second leading cause of death in the world. The causes may be gene mutations inherited from the parents or gene mutations caused due to other forces like exposure to many toxic substances such as benzene, arsenic, formaldehyde, asbestos, and radiations, etc which are known to be potent carcinogens. Over a period they get piled up in our body and cause severe diseases like cancer. The etiology and pathology of the cancer are found to be similar to the etiology and pathology of Dooshivisha. Due to its low potency and avarana, dooshivisha does not cause sudden death. It is retained in the body for long period, and on getting favorable condition it causes disease related to particular tissue where they get accumulated. Even in the first stage as well as in the following stages of cancer, Ayurveda can help to retard the progression of the disease and also help to improve the quality of life. There are several treatment modalities available based on the type of cancer, mainly chemotherapy, and radiation therapy. In chemotherapy, several chemicals are used to damage the cancer cells, while in radiation therapy x rays are used, which damages the DNA of the cancer cells causing them to die. But other types of fast-growing healthy cells such as blood and hair cells also can be damaged along with the cancer cells, causing adverse reactions and side effects. With the help of different therapies and formulations of Ayurveda, the adverse effects can be reduced as well as it assists the body in its recovery process. One such agada formulation explained by acharya vagbhata and Sushruta in their samhitha is Dooshivishari agada. It is a herbomineral formulation containing twelve ingredients. It is said to be the formulation of choice for the treatment of dooshivisha, and the majority of its ingredients have been proved for possessing anticancer activity by various research works. Hence dooshivishari agada can be an appropriate choice of medicine in the management of cancer. In this paper dooshivishari agada prayoga in cancer is discussed in detail.

Keywords: Ayurveda, Agada, Cancer, Dooshivisha, Dooshivishari agada

Introduction

Cancer is a generic term for a large group of diseases that can affect any part of the body. One defining feature of cancer is the rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body and spread to other organs; the latter process is referred to as metastasis. Metastases are the primary cause of death from cancer1. Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 20202. Though heredity plays its role in causing cancer that includes only 5% of cancer cases, non -heredity factors such as lifestyle, food, level of physical activity, personal hygiene, environmental pollution are the major causing factors3. In this modernized era, people are

exposed to different kinds of toxic substances such as ultraviolet, ionizing radiation, asbestos, arsenic, smoke, tobacco, formaldehyde, etc through the air, water, land, environment, food, etc. Long term exposure to poisons in lower doses leads to cumulative deposition in body tissues without producing any symptoms, however on getting favorable conditions they manifest as dreadful diseases like cancer, Alzheimer's disease etc. A similar mechanism is found in dooshivisha, a concept of cumulative poison.

Dooshivisha is one of the unique concepts of Ayurveda. When any visha either plant origin, animal origin, or synthetic origin retained in the body after partial expulsion, they get collected inside the body. They become less potent after digestion or by the administration of vishaghna aushadhi stays in the body for a long period without producing any grave symptoms. It slowly vitiates dosha and rasa raktadi dhatus. The tissue where the toxins get deposited causes grave diseases like cancer in that tissue. Due to its alpa veeryatha, kapha pradhanata, and avrana it does not cause sudden death. The same pathology is seen in cancer. After long-term exposure to carcinogens, rasa raktadi dhatus get vitiated and causes mutation of cells4.

Management of Cancer

For the management of cancer, several treatment modalities are available like surgery, chemotherapy, radiotherapy, immunotherapy, gene therapy, etc. Despite the availability of a wide choice of treatment chemotherapy and radiotherapy are considered as the most superior among all. A wide range of chemicals are used to kill the cancer cells through chemotherapy and high doses of radiation x rays are used in radiation therapy to damage the DNA of the cancer cell, thereby it kills the cancer cells and shrinking tumors. They have their beneficial effects and side effects5. So to minimize the side effects of the treatment and to improve the quality of life in cancer patients, an integrated approach of the treatment with principles of Ayurveda may be beneficial. In the samhithas of Ayurveda, different treatment principles like vamana and virechana are mentioned. And dooshivishari agada is one of the agada formulations specifically told in the management of dooshivisha6. It is a herbomineral formulation containing twelve ingredients7 –

1. Pippali (Piper longum),
2. Dhyamaka (Cymbopogon martini),
3. Jatamansi (Nardostachys jatamansi),
4. Lodhra (Symplocus recemosa),
5. Ela (Elettaria cardamomum),
6. Suvarchika (Taribulus terrestris),
7. Kutannata (Oroxylum indicum),
8. Nata (Valeriana wallichii),
9. Kushta (Saussurea lappa),
10. Yashtimadhu (Glycyrrhiza glabra),
11. Chandana (Santalum album),
12. Gairika (Red ochre).

Dooshivishari agada and cancer

The majority of the ingredients of dooshivishari agada have been proven for their anticancer activity through previous research works.

1. Pippali: The cytotoxic effects and the mechanism of action were investigated in breast cancer cells using the MTT assay and Western blot analysis, respectively. Female Sprague-Dawley rats with NMU-induced mammary tumors were used in preventive and anticancer studies. The results showed that PFPE inhibited the growth of luminal-like breast cancer cells more so than the basal-like ones by induction of apoptosis. PFPE had low toxicity and a potent antitumor effect on mammary tumorigenesis in rats.8

2. Dhyamaka: The essential oil from a lemon grass variety of Cymbopogon flexuosus was studied for its in vitro cytotoxicity against twelve human cancer cell lines. The in vivo anticancer activity of the oil was also studied using both solid and ascitic Ehrlich and Sarcoma-180 tumor models in mice. Our results indicate that the oil has a promising anticancer activity and causes loss in tumor cell viability by activating the apoptotic process as identified by electron microscopy.9

3. Jatamansi: The anti-tumorous potential of Nardostachys jatamansi rhizome extract (NJRE) on the U87 MG cell line was evaluated through various in vitro and in-silico bio-analytical tools. A strong dose-specific and time-dependent anti-tumorous potential of NJRE on U87 MG cells was seen.10

4. Lodhra: Symplocos racemosa bark showed potent antioxidant and anticancer activity. It may be due to the presence of phytochemicals which are responsible for the anticancer activity.11

5. Ela: black pepper and cardamom extract significantly enhance the cytotoxic activity of natural killer cells, indicating their potential anti-cancer effects. Our findings strongly suggest that black pepper and cardamom exert immunomodulatory roles and antitumor activities, and hence they manifest themselves as natural agents that can promote the maintenance of a healthy immune system. We anticipate that black pepper and cardamom constituents can be used as potential therapeutic tools to regulate inflammatory responses and prevent/attenuate carcinogenesis.12

6. Suvarchika: These data indicate that T. terrestris extract has cytotoxic, anti-proliferative, and pro-apoptotic activities. It was less toxic against normal human fibroblast-like cells in comparison to cancer cell lines. Further in vivo research would help explore and interpret the potential properties of T. terrestris extract and its components as an anti-cancer supplement.13

7. Kutannata: non-polar extracts of O. indicum (especially PHO) can effectively target ER-negative breast cancer cells to induce apoptosis, without harming normal cells by cancer-specific cytotoxicity. Hence, it could be considered as an extract with candidate precursors to possibly harness or alleviate ER-negative breast cancer progression even in advanced stages of malignancy.14

8. Nata: The antioxidant and anti-inflammatory activity of V. wallichii extract in MPTP induced mice. PD induced mice were administered orally with three different doses (50, 100 & 200mg/Kg body weight) of plant extract for 14 days and their interactive changes were studied.

From the study, it was concluded that V. wallichii rhizome extract has the potential to improve oxidative stress and inflammatory destruction in PD.15

9. Kushta: Cell viability of KB cells was evaluated by 3-[4, 5-dimethylthiazol-2-yl]-2, 5-diphenyltetrazolium bromide assay after treatment with 30 µg/ml of methanol extract from the dried roots of S. lappa. Treatment of S. lappa extract onto KB cells reduced cell viability significantly with an IC50 value of 30µg/ml. The formation of a DNA ladder was observed starting at the 24 h treatment. Results suggested that S. lappa extract inhibited cell proliferation through the apoptosis pathway in KB human oral cancer cells.16

10. Yashtimadhu: The present study was undertaken to evaluate the antimicrobial and anticancer activity of ethanolic extract of Glycyrrhizaglabra. The results were that the plant extracts were mildly potent as an antimicrobial agent and anticancer activity having an IC_5value of 31.2 µg/ml.17

11. Chandana: Cell line and animal studies reported chemopreventive effects of sandalwood oil and α-santalol without causing toxic side-effects. Our laboratory identified its anticancer effects in chemically-induced skin carcinogenesis in CD-1 and SENCAR mice, ultraviolet-B-induced skin carcinogenesis in SKH-1 mice, and in vitro models of melanoma, non-melanoma, breast, and prostate cancer. 18

Discussion

Cancer is the most prevailing disease in the present modernized world. Toxins have entered human's every part of life through all the ways including food, air, and water. Some toxins get slowly deposited in the body act as a carcinogen. People are suffering from cancer of a particular tissue or organ where the toxins get deposited. Dooshivisha is the collection of partially eliminated toxins after anti-poisonous treatment, over a period they damage the cell. Due to the similarity in the etiology and pathology, cancer can be correlated with dooshivisha. The poison gets cumulatively deposited in dhatu, thereby it weakens the dhatu and it will be more prone to produce cancer. In conventional medicine surgery, chemotherapy, and radiation therapy are been used as the best treatment modality for the past few decades. These treatments have a high rate of success in cancer treatment along with some toxic effects. The chemicals and radiations used while treatment increase the chemical load and are not expelled out from the body. Both chemo and radiotherapy can damage the healthy host cells while killing the cancerous cells. Some other common side effects are – tiredness, hair loss, nausea, vomiting, diarrhea, skin peeling, dryness and irritation of the skin, anemia, etc.5 these symptoms resemble the symptoms of Dooshivisha. Agada formulations are anti-poisonous formulations that remove and neutralize the effects of poison in the body. One such agada formulation said for the management of dooshivisha is dooshivishari agada.7 Formulation for cancer management should have the properties to increase the immune system of the body, should prevent the uncontrolled growth of the cancer cells, detoxification of the body, create an environment that is unfavorable for the cancer growth, and fight free radicals that cause mutagen changes. Few of the herbs present in dooshivishari agada have rasayana, vrishya property which helps to improve the immune system of the body. Out of twelve ingredients eleven herbs have individually proved to have anti-cancer and antioxidant

properties through various research works.8-18 Synergistic effects of these herbs may prove beneficial in treating cancer and improving the quality of life in cancer patients.

Conclusion

Cancer is becoming the global burden because of increase in prevalence rate every upcoming year. Hence management of cancer as well as improve the quality of life in cancer patient is the time need. Prevention and care of cancer can be effective if Ayurvedic approach of dooshivisha is applied. The combined effect of the properties of all the ingredients present in dooshivishari agada may prove effective in prevention, care, and cure of carcinoma along with improving the quality of life in them.

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EFFECTS OF LONG TERM USE OF HAIR CARE PRODUCTS ON AGING OF HAIR AND AYURVEDIC MEASURES FOR PREVENTION OF PREMATURE AGING OF HAIR.

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Abstract:

Hair is a part of integumentary system, which plays a vital role in the appearance of human being. Along with essential hair care products like shampoo, hair oil and conditioner, people are also using revitalizing serum, medicinal oil, and other such products to address hair-related problems. The hair care products market in India was valued at INR 224.76 Billion in 2018 and is expected to reach INR 384.19 Billion by 2024.

Hydrogen peroxide, Ammonium persulfate, common coal tar dye like Pphenylenediamine, DEA (diethanolamine), Cadmium etc. are present in many hair products like bleaching product, shampoos, hair dyes and hair creams. These can cause Types I and IV allergic contact reactions, dermatitis and are known carcinogenic. Hence long term use of these products is harmful for health of scalp and hair. It acts as an aggravating factor foraging by destruction of melanocytes, thinning of diameter and density ofhair.

Palitya and Khalitya are hair related aging signs. Aggravation of Pitta is responsible for premature graying of hair. Various chemicals present in these cosmetic products vitiate Pitta due to their Tikshna and Ruksha Guna. Their long term use acts as a causative factor for Dooshivisha. Ayurveda gives more emphasis on prevention of diseases. For preventing aging related Palitya and Khalitya measures like Shiro Abhyang and Nasya is advised in

Dinacharya. Pratimarsha Nasya by Anu Taila should be used daily to prevent premature

graying of hair. Various Rasayana Kalpa can also help in prevention of aging of hair. Ahar

Vidhi Vidhan should be followed for proper nourishment of all Dhatus, since Rasa Dhatu as

well as Asthi Dhatu Poshan is essential for proper health of scalp and hair.

Keywords: Cosmetics, Hair Care, Keshya, Khalitya, Palitya,

Introduction:

Hair are considered as an expression of beauty. As Martin Luther said, "Hair is the biggest ornament of the women". It is a part of integumentary system. In mammal's functions of hair are protection from mechanical insults and heat regulation. It also plays a vital role in the appearance of human being and social and sexual communication1.Aging of hair is visible easily as graying and balding.

Along with essential hair care products like shampoo, hair oil and conditioner, people are also using revitalizing serum, medicinal oil, and other such products to address hairrelated problems. Hair care has developed as an essential part of the Indians normal beauty routine lately. Access to the international beauty products and trends have led to the rapid growth of the hair care market in India. The hair care products market in India was valued at INR 224.76 Billion in 2018 and is expected to reach INR 384.19 Billion by 20242. "Statista Research Department" has done a statistical survey on per capita spend on beauty and personal care (BPC) products in India from 2011 to 2015. it was observed in this survey that in 2015, around 6.3 U.S. dollars per capita was spent on beauty and personal care products across India3.

To enhance the quality, properties and durability many chemical compounds are being put in the formulations. These are namely additives, fragrances, preservatives, stabilizers, surfactants, dye and shine. Several of these substances are bioactive. They have potential bioaccumulation ability and environmental persistence. They pose a major risk to human health as well as the ecosystem4.

Aim of this article is to review long term effects of various hair products on aging of hair and to explore preventive measures described in various classical texts of Ayurevda to prevent aging of hair.

Methods:

For this article review was done by using various Ayurvedic Samhita like Charak Samhita, Sushruta Samhita, Ashtang Hridaya, Yog Ratnakar and books like Kamasutra, Anangaranga which explains hair care. Also modern and ayurvedic textbooks on geriatrics along with research articles and market studies published were studied. Key words like hair, use of cosmetics, side effects of cosmetics, Kesha, Keshya ,Palitya (graying of hair) were used for search. Google scholar, PubMed were used for searching articles published on this topic.

These material was then analyzed for this article.

Results:

Aging of hair:

Aging is linked with gradual decrease in the maximal function and reserve ability of all the organs in the body which includes the skin. aging in hair presents with the most common phenomenon of graying. It generally begins in fourth decade irrespective of gender. Usually, graying begins in the temporal region in men and in the frontal region in women5. The presence and function of melanocytes is responsible for hair pigmentation. They are sustained by the stem cells of the bulge area of the hair follicle. the loss of hair pigmentation is due to loss of melanocytes and melanocyte stem cells6. Depletion of mature melanocytes and immature melanoblasts is reported in a recent study in aged hair follicles. This leads to melanocyte stem cell depletion and subsequent hair graying7.As age advances, decrease in diameter of scalp hair is evident. In histopathological study significant reduction in the size and number of hair follicles on the scalp as well as body is observed. Reduction in the duration of hair growth with prolongation of the interval between the shedding of a hair in telogen and the emergence of a

replacement hair in anagen is seen. There is increase in the proportion of telogen hair follicles. Facial hair shows hormone modification by improving the number of hairs and change in their shape (more curling of temporal hair is observed in men). The remaining hairs may be smaller in diameter and may grow more slowly.8,9

Aging of hair is affected by following factors10,11:

1. Genetics: genetic variability is found as a risk factor in developing pattern hair loss, especially in males. Male baldness is generally considered to be a multi-gene disorder.

The androgen receptor gene lies on the X chromosome12,

2. Weathering (wear and tear): As the hair grows from the scalp degeneration or weathering starts upto some extent. It is exaggerated by various physical and chemical procedures like overzealous brushing, bleaching, permanent waving and conditions like trichotillomania13. It mainly affects free end of growing hair fiber. Generally, the damage is most prominent near the tip of scalp hair that often appears lusterless and paler than the more proximal growth, with varying degrees of split ends.

3. Lifestyle (health, grooming habits, nutrition): smoking and drinks were found as aggravating factor for premature greying of hair and androgenic alopecia14. Stress is also one of the factor responsible for hair loss and greying 15.

4. Styling behavior (dyeing, bleaching, blast drying, curling, straightening): Styling behaviors and products which contain many harmful contents are responsible for long term ill effects from dermatitis to cancer. Excessive hairstyling or hairstyles that pull hair tight, such as pigtails, can cause a type of hair loss called “Traction Alopecia”16.

Products used for haircare[17]:

Hair care products can be classified into two main types:

(1) Cosmetics with temporary effect on the hair like shampoos, conditioners, sprays, and

temporary colors

(2) Cosmetics that produce permanent effect on the hair shaft like permanent waves,

relaxers, bleaches and permanent colors.

Harmful contents in hair care product and their adverse effects[18,19,20]:

Sr. no.	Hair care product	Harmful content	Adverse effects
1.	Shampoos	SLS (sodium lauryl sulfate), SLES (sodium laureth sulfate) and ammonium lauryl sulfate	Allergic reaction to scalp and frizzy hair
		Propanol and isopropyl alcohol	Brittleness of hair
		Synthetic Perfumes	Hair loss
		Selenium sulfide	Carcinogen
		Cocamide-DEA	Allergen & carcinogen
2.	Conditioners	Quaternium-15	Carcinogen
3.	Hair Dyes	p-phenylenediamine(coal tar dye)	Stinging sensations, Erythematous rash, swelling, blisters, and surface oozing,
			Carcinogen
		Henna dyes	Anaphylactic reaction
4.	Bleaching Agents	Hydrogen peroxide, ammonia	Increased porosity of hair and permanently raised scales, leading to hair weathering
		Persulfate salts	Persulfates can trigger reactions, such as rhinitis, asthma, contact urticarial and even anaphylaxis
5.	Waving lotion	Ammonium thioglycolate	Damage to the cuticle cells Exposure to the hair shaft cortex Breakage of hair Fragile and short hair
6.	Alkaline straighteners	1%–10% sodium hydroxide (lye-relaxer), lithium hydroxide, calcium hydroxide	Frizzy hair Dandruff Hair loss Thinning and weakening of hair greying of hair And split ends
		Petroleum (Polycyclic aromatic hydrocarbons (PAHs)	Allergen and skin irritation
7.	Hair cream	Cadmium	Deposition in kidney and liver, carcinogen

Table 1/ Harmful contents in hair care products

Overall Effects of Hair Care Products on Hair Aging:

Long term use of hair care products damage hair. They affect the hair quantity and quality causing reduced hair density. Sebum production is reduced leading to dryness of scalp and excessive dandruff. These products are responsible for hair fall, thinning of hair or redness of scalp. Scalp damage and permanent discoloration of hair occurs due to excess use of hair sprays. Allergic reactions due to any of the above mentioned contents can cause burning, redness, itchy scalp, breathing difficulties and facial swelling21.

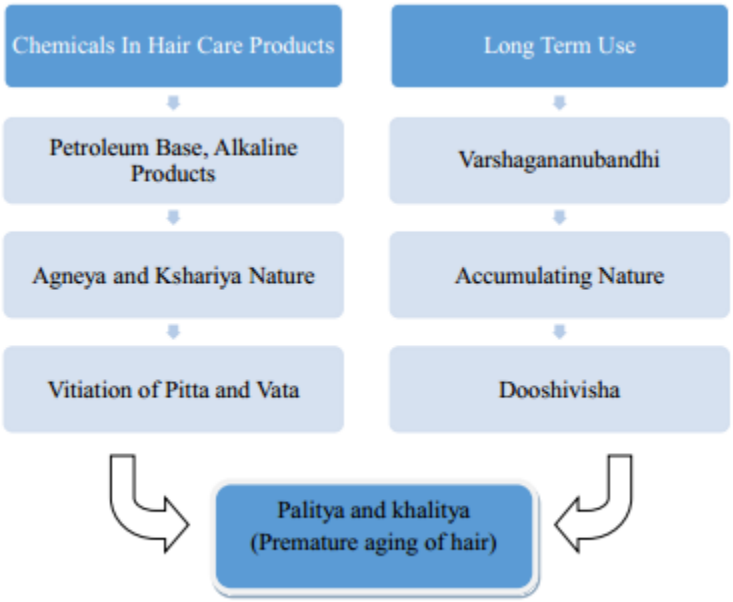
Concept of Hair Aging in Ayurveda:

In Ayurveda, lifespan of an individual is divided into three stages known as Vaya. These are Balyavastha (childhood), which lasts up to the age of 16 years; Madhyavastha (young and middle age), which lasts from the age of 16 years to 60– 70 years; and Vriddhavastha or Jirnavastha (old age), which refers to the period after 60 or 70 years. Vriddhavastha also known as Jara is the last part of the lifespan which is mainly characterized by degenerative changes. Aging is a multidimensional process involving physical, psychological, and social changes. The changes are always degenerative in nature. It is characterized by decay in the body, Dhatu (various anatomical tissues), perception power of the Indriya (sensory and motor organs), potency, strength, speech, various mental and cognitive functions (e.g., memory, intellect, reception, retention, analytic ability, etc.). During this phase there is predominance of Vata Dosha (one of the three physiological body factors). The major physical changes

seen at this time are wrinkling of skin, graying of hair, baldness, and a diminishing ability

to do physical work22,23.

Effect of Long Term Use of Hair Care Product and aging of Hair: Ayurvedic



Long term use of hair care product acts in 2 ways. Many chemicals are derived from - petroleum or coal tar which is inflammable in nature. Hence they are Agneya (hot) in nature.

They vitiate Pitta Dosha and are responsible for vitiation of rasa Dhatu because of Ushna and Ruksha Guna. Vitiation of rasa is responsible for Akal Palitya (premature graying of hair24).

These chemicals are bio-accumulative in nature which is also responsible for Dooshivisha Utpatti in body. As mentioned in Ashtang Hridaya patient suffering from Dooshivisha loses all the body hair and resembles a bird without a feather25.

Also acute reactions to these hair care products especially various dyes can be correlated to symptoms narrated in Sushruta Samhita namely Vishajushta (contaminated with poison) Awalekhan (comb), Shiro Abhyang (head massage),Snan (bath) and Ushnisha (turban).

These are Keshshat (hair fall), Shiro Dukkha (pain), Khebyashcha Rudhiragama (bleeding).

In allergic reactions and dermatitis these symptoms are observed26.

Preventive Measures for Premature Graying of Hair:

Ahara:

Hair is the byproduct of Asthi dhatu as per Aacharya Charak and Updhatu of Majja by Aacharya Sharangdhar. Kesha is Parthiv Bhava, hence regular diet like Shastika, Shali (rice), Mudga, Goghrita (ghee) , Dugdha (milk), Kushmanda, Dadima (pomegranate), Kharjura (dates) and Narikela (coconut) should be advised. Excessive use of Amla and Lavana Rasa (sour and salt) should be avoided27. Food rich in biotin namely; egg yolk, nuts and seeds, legumes, avocado, banana , liver etc. are also essential for hair growth28.

Dincharya[29,30,31:]

Those who are willing to avoid premature aging should follow daily routines which are advised in the classical texts. Following measures help to prevent premature graying of hair:'

1. Nasya: as said by Vagbhata , " nasa hi shirso dwaram" . Use of Nasya is beneficial for health of Kesha and all the Indriya located in this Jatru Urdhwa area. Anu Taila or Til Taila (sesame oil) should be instilled in nose daily. Those who practice Nasya with Anu Taila daily, their hair or mustache remains black and hair fall is prevented.

2**. Shiro Abhyang** (head massage with oil): application of oil to head is good for hair.

Hair becomes soft, strong, and black.

3. **Snana (Bath):** bath with excess hot water over head should be avoided. Hair should

be washed with cold water.

4. **Ushnisha (use of turban):** head should be covered while going outside, it protects hair

from dirt and dust.

Gandush and Dhumpana are also advised for healthy hair in some Samhitas.

Rasayana Vidhi:

Those who are willing to avoid premature aging should follow Rasayana Vidhi in Poorva or

Madhyama Vaya i.e. between 16 to 70 years of age32,33. Following Rasayana Kalpa has

Keshya effect:

1. Rasayana Kalpa in Asthang Hridaya:

    a. Pathyamalak Rasayan 34

    b. Lohadi Yog35

    c. Narsimha Rasayana36

2. Rasayana Kalpa in Yog Ratnakar37:

    a. Amalakyadi rasayan

    b. Krushnatiladi yog

    c. Vardhman bhallatak yog

    d. Amalaki rasa

    e. Gandhak rasayana

f. Tail prayog: Eranda Tail/ Neem Beeja Taila/ Jyotishmati / Palash Fala Tail

Rejuvenation process (Kayakalpa)[38]

Kayakalpa a very famous rejuvenation treatment used to be practiced in Tanjore by King Serfoji It used to make a person look young and brought change in the color of the hair and texture of the skin, improve the eyesight and so forth. For this "equal quantities of 5 ingredients namely Kadunimba (Azadirachta indica Juss.) leaves, Maka (Eclipta alba Haask.) leaves, Mundi (Sphaeranthus indicus Linn.) leaves, Nirgundi (Vitex negundo Linn.) leaves and Vova (Carum copticum Benth.) leaves are dried in the shade. Then two pinches powder of this mixture is taken internally twice a day. During the process the diet should consist mainly of milk and rice only. The person then soon starts looking younger, the skin becomes lustrous and even the grey hair turns black".

Kalpa mentioned by Vatsyayana in Kamasutra:

Vatsyayana have mentioned following formulations for healthy and black hair[39]:

1. The juice of the roots of Madyantika, yellow amaranth, Anjanika, Ciltoria ternatea and Shlakshnaparni when used as a lotion helps hair to grow.
2. If oil is prepared from these herbs is applied as a lotion or ointment makes hair black.

Kalpa mentioned in Anangaranga [40]:

1. Paste prepared flowers of sesame and fruit of Tribulus lanuginosus is applied to hair for 7 days after adding cow's milk makes hair thick and strong.
2. Oil prepared from croton seeds and elk horn is applied to hair will make hair dark black.
3. Ivory ash mixed with water is applied to head will grow back hair.
4. 40 Masha of Neem tree oil should be consumed daily for a month which helps to color hair black.
5. Oil extracted from sesame seeds after soaking them in juice of Snuhi (Euphorbia nerifolia) bleaches hair white.

Conclusion:

Recently large number of chemical compounds are used in the process of manufacturing of cosmetics, beauty and personal care products. They improve quality, performance, and shelf life of this products. It has been observed that these chemicals have harmful effects. many of these substances are bioactive, and exhibit ability of potential bioaccumulation, thus they exert a serious threat to the environment and human health because of haphazard, extensive and persistent exposure. One should wisely choose the beauty products for daily use. Ingredients in hair care products should be reviewed before use and if possible healthy organic alternatives should be chosen. Dincharya should be followed.

Proper diet rich in biotin should be consumed for natural healthy hair.

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THE DETERMINATION OF ANTIOXIDANT ACTIVITY OF GOMUTRA SHODHIT VATSANABH (ACONITUM FEROX) USING FRAP METHOD

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ABSTRACT:-

Ageing is the inevitable truth of the life being a natural process. Effects of free radicals may cause premature ageing which is an unnatural process. To avoid or reduce effects of free radicals body needs antioxidants as a body protector. Synthetic antioxidants like Vitamin A, Selenium are often used by community while antioxidants of natural origin are not so commonly used. Majority of medicinal plants mentioned in Ayurved as a Rasayan have antioxidant activity. Of which few are studied & many are still awaited to be researched on modern parameters like Vatsanabh. The aim of this study was to obtain antioxidant activity of methanolic extract of Gomutra shohit Vatsanabh root using FRAP (Ferric Reducing Antioxidant Power) method. Sample of Vatsanabh root (Aconitum ferox) processed in Cow's Urine was extracted using soxhlet method by methanol 50%. The absorbance was measured with a UV-Vis spectrophotometer at a wavelength of 700 nm and the total value of antioxidant activity was calculated based on the data absorbance. The result showed that extract showed quite significant antioxidant capacity in mmol/100gm equivalent of Ascorbic acid with the value as 739.

Keywords: Vatsanabh root, Alkaloids, Shodhan, FRAP.

Introduction:-

Rasayantantra is the name of that branch of Ayurved which describes the methods of withholding ageing, increasing lifespan, intelligence, strength and capacity to get rid of diseases1. Rasayan2 (Promotive treatment) means the way for attaining excellence of rasa etc. (dhatus). Agadtantra is related with the diseases due to different kinds of poisons and their treatment3. Visha is of two types Sthawar & Jangam. Sthawar Visha is of two types Visha & Upavisha.Visha are nine in number & of the nine Vishas; Vatsanabh is considered as best for Rasayan4. According to Ayurved; Visha is of tremendous medicinal value but should be used after Shodhan procedures only5. Three Shodhan procedures are mentioned regarding Vatsanabh in the texts however which method is superior or best for therapeutic use of Vatsanabh as a Rasayan is nowhere clearly explained but while explaining few formulations as Visha Rasayan and Amrut Rasayan use of Gomutra shodhit Vatsanabh is clearly advocated6. Hence in this study Shodhan procedure with Gomutra was studied. Vatsanabh is one of the most poisonous plants known till today to mankind but still used widely in Ayurved treatment in various diseases as

Shwas, Kasa, Pandu, Amwat etc.7. Ayurved science considers ageing as natural or physiological phenomenon while premature ageing as unnatural or diseased condition8, 9. According to modern science also ageing is a natural process and premature ageing is an unnatural process and antioxidants are one of the causative factors for the ageing10. Antioxidant action maybe one of the probable modes of action of Rasayan chikitsa or drugs used for Rasayan11. Vatsanabh is clearly mentioned as Rasayan in Samhitas12; however no study has been conducted for antioxidant action of Vatsanabh as a single drug to the best of my knowledge. It is mentioned as Vatsanabh should be given after mixing with one of these medicines- Yashtimadhu, Mrugshrunga, Murudsheng,

Ativisha, Tavakil or Vacha in a proportion as 1:7 to avoid its ill effects in one of the books about Rasayan Chikitsa13; hence individual Rasayan effect of Vatsanabh is yet to be researched. In this research, antioxidant activity was obtained using FRAP (Ferric Reducing Antioxidant Power) method. The advantages of this method are it can determine the total antioxidant content of a material based on the ability of antioxidant compounds to reduce Fe^{3+} ions to Fe^{2+} so that the antioxidant power of a compound is analogous to the ability to reduce the compound14. The medicinal plants exhibit strong antioxidant activity which is The determination of Antioxidant activity of Gomutra shodhit Vatsanabh (Aconitum ferox) using FRAP method; Dr. Gajanan D. Chatuphale 3 depending on their potential to form the complex with metal atoms, particularly iron and copper. This method is based on the principle of increase in the absorbance of the reaction mixtures, the absorbance increases the antioxidant activity increases. The antioxidant compound present in the samples forms a coloured complex with potassium ferricyanide, trichloroacetic acid and ferric chloride, which was measured at 700 nm by UVSpectrophotometer15. In this study antioxidant activity of methanolic extracts of Crude Vatsanabh (Aconitum ferox) root, Gomutra shodhit Vatsanabh root were determined and results were analysed.

Materials and Methods:-

Collection and selection of drug:

One kilogram of fully matured Vatsanabh (Aconitum ferox) roots were collected from the local market of Uttarakhand in India and were botanically authenticated by Pharmacognosists and sample specimens were kept for future reference. Gomutra (Cow's urine) was collected from the local cow shed in the morning and was used for Shodhan procedure of the root. Equipment for Shodhan:

Stainless steel plates circular shapes 2 in number; measuring mug (capacity of 1 L), Clay pot of 1 litre capacity, pestle and mortar to cut the roots into pea size.

Shodhan Procedure[16]:

100 gm. of clean and dried roots of Vatsanabh were made into pea sized pieces with pestle and mortar and were kept in a clay pot having one litre of cow's urine in it for three consecutive days. The pot was kept on the terrace having plenty of sunlight in the month of April. Each day the Gomura (cow's urine) was replaced with the fresh one. On the fourth day, the roots were washed with water; the outer cortical layers were peeled off and the product was again washed with warm water. The pieces were dried in sunlight and kept in an air tight glass container and the final product was labelled as Gomutra Shodhit Vatsanabh.

Anti-oxidant Assay: Ferric Reducing Antioxidant Power assay (FRAP Method):-

Materials and equipments for FRAP assay[17]: -

- Deionized water
- Potassium ferricyanide
- Sodium chloride
- Potassium chloride
- Disodium hydrogen phosphate
- Potassium dihydrogen phosphate
- Hydrochloric acid
- Trichloroacetic acid
- Ferric chloride
- Centrifuge tubes
- Pipette

- Water bath
- Vortex shaker
- Centrifuge
- UV-Spectrophotometer

Preparation of Reagents:

0.2 M phosphate buffer (pH 6.6): 8 gm. of sodium chloride, 0.2 gm. of potassium chloride 1.44 gm. of disodium hydrogen phosphate, 0.24 gm. of potassium dihydrogen phosphate was taken in a 1,000 mL standard flask and 800 mL of distilled water was added and the pH was adjusted at 6.6 using hydrochloric acid and adjusted the volume with deionised water.

Potassium ferricyanide (1%): 1 gm. of potassium ferricyanide was dissolved in 100 mL of deionised water.

Trichloroacetic acid (10%): 10 gm. of trichloroacetic acid was dissolved in 100 mL of deionised water.

Ferric chloride (0.1%): 100 mg of ferric chloride was dissolved in 100 mL of deionised water.

Ascorbic acid (0.1%): 1 mg of ascorbic acid was dissolved in 1 mL of water.

Standard Solution:

Working solutions of Ascorbic acid were prepared with different concentrations viz. 100 µmol/ L, 200 µmol/ L, 400 µmol/ L, 600 µmol/ L, 800 µmol/ L and 1000 µmol/ L respectively. These working solutions were used for calibration.

Sample Preparation:

Ashuddha/Crude Vatsanabh: 1.250 gm. sample was refluxed with 20 mL of 50 % methanol for 3 hrs and then volume made up to 50 mL with methanol.

Gomutra Shodhit Vatsanabh: 1.088 gm. sample was refluxed with 20 mL of 50 % methanol for 3 hrs and then volume made up to 50 mL with methanol.

The working solutions thus obtained were used for Antioxidant study

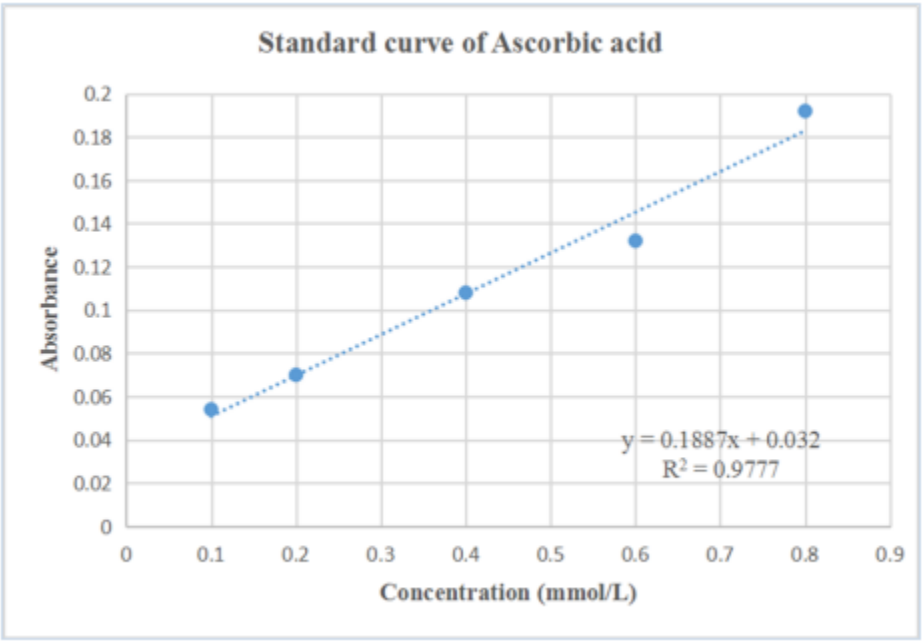
Procedure[18]:

1ml of the above said working solutions of the samples were taken in test tubes and labeled as sample. 2.5. ml of 0.2 M Phosphate buffer (6.6pH) and 2.5ml of 1% Potassium ferricyanide were

added. This solution was mixed well with vortex mixer and incubated at 500C on water bath for 20 minutes. 2.5 ml of 10% Trichloroacetic acid was added and centrifuged at 3000 rpm for 10 minutes. Then 2.5ml of the supernatant solution was taken in the test tube and mixed with 2.5 ml of water. 0.5 ml of 0.1% of Ferric chloride was added to this solution and mixed well with vortex mixer. Immediately absorbance was measured of the sample solution in UV spectrophotometer at 700 nm using control solution. From the linear equation of standard the antioxidant capacity of the sample equivalent to standard Ascorbic acid was determined.

Standard Curve of Ascorbic acid:

The curve of regression was obtained using the value of absorbance (y) and concentration of Ascorbic acid (x). The regression equation was y = 0.1887x + 0.032 and coefficient of determination value (R^2) was 0.9777 as shown in the figure.



Results:-

1) Absorbance:-

1.	Ashuddha Vatsanabh	0.285
2.	Gomutra Shodhit Vatsanabh	0.902

Table 1

2) Antioxidant capacity in mmol/100gm equivalent of Ascorbic acid:-

1.	Ashuddha Vatsanabh	223.78
2.	Gomutra Shodhit Vatsanabh	739

Table 2

Discussion:-

Vatsanabh root (Aconitum ferox); is toxic due to its chief active principle an alkaloid named as Aconitine. According to Ayurveda and modern science; it is one of the most poisonous plants 19, 20. Despite it is used widely in Ayurved treatment in various diseases in many medicinal preparations after proper processing termed as Shodhan procedures. These processings are done in specific media21. Shodhan procedures enhance therapeutic properties of Vatsanabh, reduce its toxicity & convert it into medicine. In Ayurveda literature, media like Gomutra (Cow's urine),

Godugdha (Cow's milk) and Ajadugdha (Goat,s milk) has been mentioned for Shodhan procedures of Vatsanabha22. This study focuses on antioxidant effect of Vatsanabh root after processed by using Gomutra (cow's urine) as a media while antioxidant action of crude roots was also determined. In the previously conducted study, in vitro Vatsanabh root extract showed good antioxidant activity. Previous study also indicates that other than phenols and flavonoids there are some compounds present in the roots which are responsible for antioxidant activity in Aconitum ferox23. However in that study crude Vatsanabh roots were used without processed by any Shodhan procedure with any media. However in the Ayurved literature use of Vatsanabh roots is advised only after Shodhan procedure24. Hence the Determination of antioxidant activity of crude Vatsanabh (Aconitum ferox) roots was done along with roots processed in cow's urine and using FRAP Method.

This research used FRAP (Ferric reducing antioxidant power) method to obtain total antioxidant activity. Ascorbic acid was used as a standard solution because ascorbic acid functions as secondary antioxidant that captures free radicals and prevents chain reactions. That's because Vitamin C has a free hydroxyl group that acts as a catcher of basal radicals and it has a polyhydroxy group which will increase antioxidant activity. Measurement of antioxidant activity used this FRAP method with Ascorbic acid solution as reference standard. The addition of Trichloroacetic acid was expected to precipitate the potassium ferricyanide K3Fe(CN)6 complex deposited. The addition of FeCl3 is to form a complex of green to blue colour (blue berlin). Reduction power was a potential indicator of a antioxidant compound. Reduction power in this case was expected from the ability of an antioxidant to convert Fe3+ to Fe2+. Compounds that have the reduction power may act as antioxidants because they can stabilize radicals by donating electrons or hydrogen atoms to form radicals more stable. The reaction was:

$$K_3Fe(CN)_6 \longrightarrow K_4Fe(CN)_6$$

$$Fe^{3+} + e^{-} \longrightarrow Fe^{2+}$$

The analysis of antioxidant activity using FRAP assay depends on capacity of extract to reduce Fe^{3+} to Fe^{2+}. The Fe^{2+} solution has specific pale green colour which is equivalent with antioxidant present in samples25. The colour change was developed for both the samples but there was difference in the intensity of the colour which develops. The difference may be inked to the difference in the antioxidant constituents of the three samples or extracts. Table 1 shows the values of the absorbance of the root extracts of both the samples. The absorbance of each sample is different due to the difference in antioxidant constituent of the root extract.

The reducing power was given graphically in terms of concentration versus absorbance. In this assay, increased absorbance indicated increased reducing power. Gomutra shodhit Vatsanabh root extract showed almost three times absorbance and in turn three times antioxidant capacity in mmol/100gm equivalent of Ascorbic acid as compared with ashodhit/crude Vatsanabh. A previous study confirms that Shodhan procedure by using cow's urine as a media alters physicochemical parameters of Vatsanabh root significantly 26. Same observation is mentioned in one of renowned books of Dravyaguna Vigyan27. This study confirms that Gomutra Shodhit Vatsanabh can be used for therapeutic indication of Rasayan or Gomutra shodhit Vatsanabh is having significant antioxidant activity.

Conclusion:-

From this study, it is concluded that shodhit and ashodhit Vatsanabh roots shows antioxidant activity. Shodhan procedure with Gomutra significantly increases antioxidant activity of the Vatsanabh roots. After comparing antioxidant activity of both the samples it can be concluded that Shodhan procedure of Vatsanabh (Aconium ferox) in cow's urine significantly increases Rasayan or antioxidant effect of Vatsanabh. Gomutra Shodhit Vatsanabh is far better than ashodhit Vatsanabh as far as antioxidant activity is concerned. Other Ayurved plants like Vatsanabh should also be researched in coming future to know their antioxidant potential considering increased need of natural antioxidants.

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Photographs:-

1) Ashuddha Vatsanabh roots

2) Vatsanabh root pieces

3) Pieces were kept in a clay pot filled with Gomutra. Pot was kept in sunlight for 3 consecutive days (each day Gomutra was replaced with fresh one)

3) After 3 days pieces were removed and further processed

COSMETICS: AN ACCELERATING FACTOR FOR AGEING

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Abstract:

Today's young generation especially females are more fascinated toward westernized life style & cosmetics which are care materials used to develop the appearance. These materials are proposed to apply on the human body for cleaning, enlightening, increasing charm of the body. A wide range of chemicals are used in the cosmetics as ingredient, active substances, colorants & preservatives. These cosmetics include skin care creams & lotions, cleansers and body washes, nail polishes, deodorants & many more. Most of the cosmetic products contain hazardous chemicals like Talcum, parabens, Coal tar dye, Phthalates, Fragrance, Triethanolamine and some heavy metals like Lead, Arsenic, Cadmium, etc. Generally peoples are not aware of adverse effects of these chemicals. Due to long term usages, these chemicals accumulates into the body and can cause cancer, reproductive and developmental disorders, contact dermatitis, hair loss, lung damage, ageing, skin disease, allergies and effect on nails. For example, Cleansers & Body Washes which contains alcohol & petroleum products which take away natural oils & cause drying of skin, while Methylisothiazoline & methylchloroisothiazoline leads to immune system disorders and precipitates the ageing process and there are many example of chemicals presents in skin, nail and hair care cosmetics, suns creams and fragrances leads to acceleration in ageing process. In Ayurveda, cosmetic toxicity comes under the concept of Dushi Visha. This article aims to discuss about effects of cosmetics on human health and solutions in perspective of ancient toxicology.

KEYWORDS: Cosmetics, ancient toxicology, chemicals, Dushi visha.

Introduction:

Ayurveda is an ancient science consist of eight branches. One of these branches is Agadtantra which deals with the study of various toxicities and their management. Toxic effect of various substances are seen frequently in today's day to day routine mostly in the cosmetic. Cosmetics defines as "intended to be applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance without affecting the body's structure or functions."1 Now a day's wide range of chemicals are used in the cosmetics as ingredient, active substances, colorants & preservatives. These cosmetics include skin care creams & lotions, cleansers and body washes, nail polishes, deodorants & many more. Most of the cosmetic products contain hazardous chemicals like Talcum, parabens, Coal tar dye, Phthalates, Fragrance, Triethanolamine and some heavy metals like Lead, Arsenic, Cadmium, etc. Generally peoples are not aware of adverse effects of these chemicals. Due to long term usages, it accumulates in the body and can cause cancer, reproductive and developmental disorders, contact dermatitis, hair loss, lung damage, ageing, skin disease, allergies and effect on nails.

Such a way the continued use of cosmetic products for the long duration leads to damage the various systematic changes and enhances the ageing process.

Today's trend of society is towards the consumption & applying the things which ever easily available & long term use of these leads to toxicity which is seen very commonly. All the types of cosmetics & foods we eat sometimes manipulate with the health of our tissues, at times pronouncing as ill effects of Dushivisha. The toxins are accumulated in the body by many ways as described by Acharyas. In present time these toxins enter into our body by the means of cosmetics & beauty enhancing chemical treatment also.

Concept with Dushivisha:

Any type of visha (poison) which may be Sthavaram (Plant), Jangamam (Animal) or Kritrimam (Artificial) origin not completely eliminated from body and accumulate within the body, which become less effective due to jeerna (partially metabolized or partially detoxified) vishaghna aushadhi (anti-poisonous drugs) or davagni-vata-atapa (fire-wind-sunrays) or by the own characteristics of poison, it becomes less potent responsible for cumulative effects. Due to Kapha-avrutatvam (envelope of Kapha) it produces the toxic effects after the long duration.2 According to Ayurveda, human body performs all body functions through various channel systems called "Srotas", included all microscopic and macroscopic structures such as the respiratory system, nervous systems, lymphatic system, circulatory system, reproductive system, etc. These channels function as innumerable psycho-biological processes such as enzyme production, neuro-transmitter secretion, hormonal balance, respiratory capacity and digestive assimilation/ elimination, immune power etc. and also responsible for wellness and beauty of the individual. These act rhythmically and in concert with one another to perform complex decisionmaking regarding the supply of nutrients, filtration of toxins, excretion of wastes and much more. If these waste materials are insufficiently metabolized, toxins or incompletely processed foods and experiences can become deposited in weak areas of the body. If unaddressed, these can cause a disease. Weak zones occur in the body due genetic factors or more commonly, lifestyle factors, such as unhealthy food choices, stress or environmental influences. These toxins or unprocessed metabolic deposits can influence the normal psycho-biological cellular functions and loss body lustre and beauty.

Thus to improve the external appearance various types of cosmetic products are used. Cosmetics are the products use for external application to improve the appearance and self-confidence of a person. But many times this aim is achieved, because it depends upon the selection of the quality of product which is based on the type of skin like oily, dry, normal or combine. Due to poor quality of products, lack of experience and skill person cannot achieve his or her goal. Insteed of the improvement of external appearance many time the toxic effects of these chemicals can be observed. Because of these products also contains some hazardous chemical which embraced under the cumulative type of toxicity called as dushivisha in Ayurveda. Long term use of cosmetics gives rise to hazardous toxic effect & multiple system disorders.

Some commonly used cosmetics and their health impact as follows: [3,4,5]

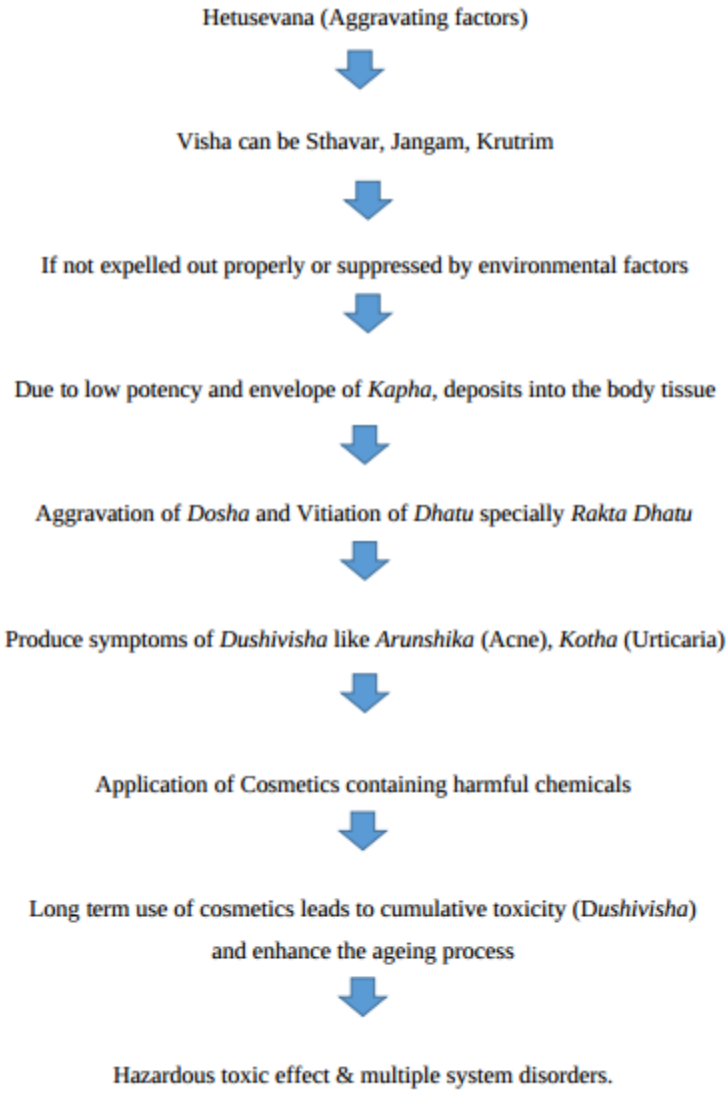
Sr. No.	Cosmetic name	Name of toxic chemicals	Effect on the body
Skin Care Cosmetics			
1	Cleansers & Body Washes	alcohol & petroleum products	take away natural oils & cause drying
		DEA (Diethanolamine) and its compounds- (Used to make cosmetics creamy, act as a pH adjuster). MEA(Monoethanolamide), TEA (Triethanolamine)	Mild to moderate skin and eye irritation, high dose of these chemicals cause liver cancers and precancerous changes in skin and thyroid.
		The foam creating chemicals include sodium laurel sulphate, ammonium laurel sulphate & myreth sulphate contaminated by 1, 4 dioxane	Skin irritation and cancer
		Parabens	Hormonal disturbance
		Methylisothiazoline & methylchloroisothiazoline	immune system disorders
2	Scrubs	exfoliating ingredients, polyacrylamide, coal tar colours, surfactant TEA that can be contaminated with cancer causing nitrosamines	Carcinogens
		methylizothiazoilone & methylchloroisothiazilone	Immune system toxins.
Hair Care Cosmetics			
3	Hair straighteners	ammonium thioglyconate	eye & skin irritation & allergic reactions
4	Hair Colours & Hair Sprays	Dyes	Ovarian cancer also increased risk of bladder cancer, non-Hodgkin's lymphoma & multiple myeloma.
5	Shampoo	Formaldehyde (to kill bacteria & reduce the risk of skin infections)	Carcinogen
		Parabens (as a preservative)	endocrine disrupting chemicals
		DEA (diethanolamine) as a foaming agent	Skin and eye irritant, high doses can be carcinogenic.
		Cocamide and Lauramide,	alter the genetic material

		sodium lauryl sulphate & sodium laureate sulphate used to create foam in the shampoos can be contaminated with ethylene dioxide	Carcinogenic
		coal tar (as a biocide to some anti-dandruff shampoos)	Carcinogenic and neurogenic damage
6	Hair Remover	Chemical depilatories, high Ph thioglycolic acid	Severe allergic reactions & pustular outbreaks.
Face Care Cosmetics			
7	Foundations	Talc, silica and alumina	respiratory irritants when inhaled as powders
		Aluminium salt	toxic to the nervous system
		Triethanolamine (TEA), nitrosamines.	Cancer
		Lead (Pb)	Target multiple body systems, including the neurologic, hematologic, gastrointestinal, cardiovascular and renal systems.
		Parabens	Interrupt the hormone system & have been found in breast cancer tumours.
8	Lotions	Mineral oils & petrolatum with polycyclic aromatic hydrocarbons (PAHS).	Carcinogenic
		Propylene glycol	Neurotoxin, contact dermatitis at very low concentration
		Lanolin	Allergies
		Triethanolamine (TEA)	skin irritant & immune system toxicant
		Retinal palmitate (for wrinkle reduction)	skin cancer
		Fragrance, phthalates	Triggers asthma, hormone disrupting
9	Body powder	talc or amorphous silica	Lung irritation when inhaled, lung disorders including lung cancer.

		talc in the genital area & on the sanitary napkins	Increased risk of ovarian cancer
10	Shaving creams	carcinogenic residues like TEA, which can be contaminated with nitrosamines & PEG-90 a binding agent that can be contaminated with ethylene dioxide	Cancer
		Propylene glycol (as a moisture carrying ingredient)	skin irritant
		Isobutene & Isopentane (as propellants) contaminated with butadiene	Carcinogen
		parabens or Butylated hydroxyanisole (BHA) (as preservatives)	Allergens and hormone disrupting and carcinogenic effects
11	After Shave	Diethyl phthalate	interfering with endocrine system & causing reproductive problems
Nail Care Cosmetics			
12	Nail Polish	toluene, formaldehyde & dibutyl phthalate (combinly called as "toxic trio")	Toluene: neurotoxin & teratogenic defects if used by pregnant women Dibutyl phthalate (DBP) (estrogen representing plasticizer) which disrupt thyroid function & accelerate sexual development in young girls also low sperm count in males.
		ethyl acetate	Infuriates the respiratory system
		benzophenone-1	endocrine distracting
		triphenyl phosphate	Neurotoxic
			Chronic poisoning of these toxins produce a syndrome called "Chronic Painter Syndrome (CPS)". It includes

			Symptoms like walking & verbal problems, memorial loss, headache, tiredness, temper turbulences, sleep maladies.
13	Nail Polish Remover	Acetone	Harmful for liver, kidneys & nervous system.
Fragnances			
14	Antiperspirants (by blocking sweat ducts)	aluminium compounds such as aluminium trichlorohydrex gly	nervous system toxicity, interfere with oestrogen & play role in rising incidence of breast cancer
15	Deodorant (by inhibiting the growth of bacteria that cause odour	antibacterial agent triclosan	Disrupting the endocrine system & has been shown to harm the thyroid system
		Isobutene gas contaminated with butadiene as a propellant in Aerosol sprays	Cancer
		Aerosol sprays	Break chemicals into minute particles can be more deeply inhaled than larger particles & this may increase their harmful effects.
		Cyclotetrasiloxane, Dimethicone	Immune and reproductive systems, also influence the nervous system.
16	Fragrance	Diethylphthalate	Endocrine disruptor, impacts normal development and reproductive health.
U.V. Screening			
17	Sunscreen	Toxic chemicals like cinnamates, salicylates, zinc Oxide	allergic reactions & irritation of eyes
18	Sun protection	Chemical sunscreens are oxybenzone, cinnamates & retinyl palmitate.	Oxybenzone- disrupts the body's hormones. It penetrate the skin & enter the bloodstream & increase sensitivity to the sun. Cinnamates- disrupts the body's

			hormones, cause allergies & may be toxic to the immune system. Retinyl palmitate- synthetic form of vitamin A increasing skin cancer risk when skin is exposed to sunlight
		Debenzoylmethanes, Para-aminobenzoic acid (PABA)	Allergic dermatitis.
		Hydroquinone	ochronosis and mutagenicity



Harmful effects of Cosmetic Toxicities:

contact dermatitis, allergies, damage of skin DNA, skin cancer, nervous disturbances, walking & speech problems, memory loss, mood disturbances, sleep disorders, respiratory irritation, asthma, ovarian cancer, developmental problems, endocrine disruptions, thyroid function disorders, disturbance of hormone system, birth defects like cleft palate, undescended testis or delayed development, early sexual development in young girls, low sperm count in males, , damage of liver, kidneys, nervous system, hair loss, bladder cancer, non-Hodgkin's lymphoma, breast cancer, etc. It shows that all these cosmatics can enhance the ageing process.

General Principal of Ayurvedic Management:

i. Hetu Viprit ChikitsaII. Specific treatment for Dushi visha
ii. Pathya- Apathya
iii. Administration of kushtaghana Aushadha
iv. Prophylaxis of cosmetic toxicity

I. Hetu Viprit Chikitsa[6]

The causes due to which the symptoms of those dosa are prominent. The treatment should be opposite of their nature.

1. When patient is having kapha prakriti and Poison is also kapha dosha in nature, in that condition vaman is indicated and application of paste of drugs (drug possess hot and penetrating property). Foods should be astringent, pungent and bitter tastes.
2. When dominancy of pitta– Poisons of Pitta nature by mild virachana (purgations), swedana (sudation), poultices applied very cold and foods which are astringent, bitter and sweet in taste, added with ghee.
3. When dominancy of vata- Poisons of vata nature should be won over by foods which is sweet, unctuous (fatty), sour, salty and added with ghee, application of drugs of the same properties and of meat as food. Purgation, external application of paste of drugs, food and medicine without the addition of ghee is not suitable. There is no medicine better than ghee in all kinds of poisons and in all stages of poisoning especially it is best when vatta dosa is very powerful. 7

II. Specific treatment for Dushi visha

According to Acharya Charaka, A patient suffered from Dushivisha should be first done Swedana (sudation or foamentation) and then body detoxified by Vamana-karma (~emesis) and Virechana-karma (~purgation). After these procedures daily Dushi-vishari Agada should be given to patient [9].

But whenever the dushivisha enters into Rakta-dhatu, then Siravedha (bloodletting therapy) along with other Panchakrmas (Detoxifying or bio-purification procedures) should be done. Proper Pathyadikarma (dilatory managements) should be followed after these detoxifying procedures [8].

Shodhana Chikitsa (Purification treatment) i.e. Panchakarma:

It is divided into purvakarma, pradhanakarma and paschatkarma

1] Purvakarma (Preparation to be done before detoxification):

1) Snehana (Oleation therapy) is adopted for softening of the channel and toxins. Thus the toxins can easily detached and after that can easily eliminated during main detoxifying procedures 9.

2) Swedana (Sudation therapy) is adopted after Snehana, so that waste materials blocked in the body channels becomes unctuous. Thus by this procedure channel gets lubricated and the waste material brought into the main body channel (Koshta). These waste materials now can expelled by Panchakarma[10.]

Pradhanakarma – Main process of Panchakarma (main detoxification procedures):

Vamana (therapeutic vomiting/ Emesis): For elimination of Kapha dosha indicated in chronic

asthma, chronic diabetes, chronic indigestion, lymphatic congestion, edema, etc 11.

Virechana (Purgation/ Catharsis therapy): For elimination of excess pitta accumulated in gall bladder, liver, small intestine. It helps to expel toxins and vitiated doshas from blood, liver and intestine. It is done after vamana karma to ensure complete detoxification. Virechana indicated in chronic skin disorders, chronic attacks of fever, chronic heart disorders, ascites, etc. 12.

Basti (Enema therapy): For elimination of vata dosha. It helps to expel body toxins and vitiated doshas by introducing medicated oils or liquids into the anus, urethra or vaginal canal. It

usually performed after vamana and virechana. Basti indicated mainly for sexual disorders, kidney stones, chronic fever, constipation, distension of abdomen, heart disorders, chronic bone and joint disorders like arthritis, rheumatism, gout etc 13.

Nasya/ Shirovirechana (nasal medication): In nasya, medication are administrated through nose. As the nose is gateway of brain, thus this therapy used for expel toxins and vitiated doshas from head and neck along with nasal and oral secretions. Nasya is used in neurological and mental disorders like migraine, convulsion, reduced sensory perceptions, loss of memory, and certain eye and ear disorders 14.

Raktamokshana (blood-letting therapy): In this procedure small amount of blood extracting from veins. When toxins present in gastro intestinal tract and absorbed into blood. These toxins circulated all over the body along with blood. It responsible for repeated infections and other circulatory disorders. It also responsible for various skin disorders like urticaria, herpes, eczema etc. In all these disorders Raktamokshana can be used. This procedure also stimulate the spleen to produce antitoxic substances, helps in stimulation of immune system 15.

Paschatkarma:

The strict diet plan and lifestyle procedures should be followed in Panchakarma like vamana and

virechana. To bring back the normal lifestyle and diet, some rehabilitative procedures should be followed called as Pashatkarma. After panchakarma normal diet should not be given immediately because the Agni (digestive system) is hampered. Thus the main aim of these rehabilitative procedures is bring resurge to impaired agni it includes administration of peya (rice water), vilepi (liquid rice), akrut-krut yusha (green gram soup), akrut-krut mansarasam (mutton soup) in sequence 16.

2] Shaman chikitsa (alleviating therapy):-

It is adviced when the doshas are not deep rooted. After Shodhana, Shamana is significant to subside the remaining doshas. When there is contraindication of Shodhana or patient is unable to undertake Shodhana then Shamana is very effective treatment for them. Dushivishari agada is the most important Ayurvedic herbo-mineral preparation indicated in Dushivisha. It contains Pippali (Piper longum), Dhyamakam (Cymbopogon martini), Jatamansi (Nordostachys jatamansI), Lodhra (Symplococu racemosa), Ela (Elettaria cardamomum), Suvarchika (Salt petre), Kutannatum (Oroxylum indicum), Natam (Valeriana wallichi), Kushta (Saussurea lappa), Yashtimadhu (Glycerrhiza glabra), Chandana (Santalum album), Gairika (Red ochre)[17]

Some other Shamana Chikitsa given in Bruhad Nighantu Ratnakara are- Tankan Yog[18],

Sarkaradi leha19, Krutrim Vishagruha dhoom tail20

According to Yogaratnakara- Pippalyadi Agad[21]

III. Pathya- Apathya (dietary management)

Pathya [22]: Shigru (Moringa oleifera), Amla (Phyllanthus embilica), Madhu (Honey), Ushnodaka (Hot water), Mudga yusha (Green gram soup), Kulattha yusha (Horse gram soup), Jirna shali (old rice), Karkotaki shaka (Momordica dioca), Karvellaka (Momordia charantia), Lava mamsarasa, Tittir mansa-rasa, Jangal mamsa-rasa, Vetragra phala (Garcinia indica), Dadima phala

(Punica granatum)

Apathya: Avoid antagonistic diet, over eating, anger, Fear, Exertion, excess of Sexual intercourse, day sleep particularly

Prognosis of chronic toxicity with special reference to dushi visha

Poison which has localized at the site of shlesma (Amasaya) is curabale even without much treatment, that localized in the site of pitta (small intestine) is curable with significant effort and that localized in site of vata (large intestine) is either very difficult to cure even with earnest effort or not curable at all.

Natural solution for personal care:

People became aware of the dangers present in modern-day personal care products, they started looking for natural alternatives. Fortunately, natural solutions for body care have been around for millennia. Until the first half of the 20th century, only natural solutions were used for personal grooming and cosmetics. Here, we will discuss about natural solution for personal care.

1. Customize your skin and beauty care:

Selection of the cosmetics based on the type of skin. i.e. Oily skin, Dry skin, Normal skin or combined skin. Once you figure out your skin type, it's easy to choose the right products to create beauty from the inside and the outside.

1. Feed your skin: Eating healthy foods provide the building blocks for skin cell regeneration.
2. Get your beauty sleep
3. Zap stress lines
4. Body exercise
5. Cleanse gently and naturally
6. Do a daily ayurvedic massage (Abhyanga)
7. Moisturize thirsty body skin
8. Give your hair the royal treatment

To nourish your hair, bones and nails, be sure to eat lots of calcium-rich foods such as leafy green vegetables, milk products and sesame seeds. One of the unique and powerful Ayurvedic methods for caring for the hair is a warm oil massage to the scalp. The massage motion helps increase circulation, cleanse the pores and purify dead skin cells, all of which promotes healthier hair growth.

10. Expose skin to sunlight

Expose skin to sunlight for at least 15 mins a day that too without an UV protection.

11. Drink 10-12 glass water a day.

Natural products which are useful in daily life as Cosmetics:

Bathing: Soap made from vegetable oil. Herbal bathing powders made with gram flour (Besan), green gram flour (hari moong) etc

Hair care: Shampoos containing Reetha, Shikakai, Amla as the main ingredients.

Talcum powder: Corn flour, Arrowroot powder.

Skin toner: from Cucumber juice, carrot juice, lemon juice, spearmint tea, chamomile tea

Peaches and cream mask: Peaches, peeled, pitted, and mashed, almond oil

Eye cream: Avocado oil, apricot kernel oil or sesame oil; aloe vera gel

Shaving soap: Shaving soap typically made with plant-based oil like coconut oil, castor oil, beeswax etc. would be a better option than cream or foams.

After shave: Alum is a commonly use as after shave disinfectants.
Uses of banking soda: Facial scrub and hand cleaner/softener, Hair cleanser
Uses of vinegar: Hair rinse, clean scalp, bath soak, hand softener and cleanser, hair brush cleaner

Discussion and Conclusion:

As per Ayurveda Dushivisha can be correlate with cumulative toxicity. Dushivisha is not acute condition but its effect seen gradually on the body. These poisons accumulated in the body frequently and produces the harmful effects in the body after the certain duration, thus acts as cumulative poisons. Dushivisha shows various types of toxic symptoms & disorders on different systems of the body which mainly includes skin, G.I tract, nervous system and other systems. Cosmetics can be embraced under such cumulative type of toxicity. Long term use of cosmetics gives rise to hazardous toxic effect & multiple systemic disorders. By using Shodhana and Shamana chikitsa along with specific treatment of Dushivisha explained in ayurveda these disorders can be cured. But still the alternatives for the chemical cosmetics is demand of time in the recent period. Thus compilation of various herbs described in ayurveda that can used for cosmetic purpose along with this natural alternatives for personal care, which do not produce toxic effects to the individual as well as safe for the environment are elaborated in the article.

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AGADAS IN PREVENTION, CARE & CURE IN GERIATRICS.

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INTRODUCTION –

In Ayurveda Yapya is considered as natural disease. It is the process of becoming old and decaying. As age advances, several changes take place in the body, in the external appearance, in the condition of Dosha, Dhatu, Mala, Agni, Oja, and so on, as well as in the mental and cognitive functions. That's why accepts ageing as a natural phenomenon and is categorized under the heading of naturally occurring diseases. Swabhava (nature) and Kala (time factor) are accepted as causative factor for the same.

In ayurveda Yapya classified in to 2 that is Kalaja(Timely aging) & Akalaja Jara(timely aging) and Akalaja jara(premature aging). Here timely aging is universal ageing. While Akalaja jara can be compared.with probabilistic ageing, that occurs premature or brings many diseases like EHT, diabetes mellitus type-2 as it is Aparirakshanakrita means if proper care is not taken such aging develops. Here proper care means to follow dailyb/ seasonal regimen, dietary rules, codeof conducts & use of Rasayanas ect.. Vruddhavastha or Jirnavastha (old age), which refers to the period after 60 or 70 years. Thus, every person will pass through a period when various decaying changes will take place, and this time period is known as Vriddhavastha.

PATHOPHYSIOLOGY

- Decay in the Shareera, Dhatu (various anatomical tissues), perception power of the Indriya (sensory and motor organs), potency, strength, speech, various mental and cognitive functions (e.g., memory, intellect, reception, retention, analytical ability, etc.).
- During this phase there is predominance of Vaata Dosha (one of the three physiological body factors).
- The major physical changes seen at this time are wrinkling of skin, graying of hair, baldness, and a diminishing ability to do physical work. The diseases that complicate this stage are Kasa (cough), Shwas (asthma), and any other Vataja vikaras too.
- Beyond biological changes aging is also associated with pollution, sun exposure, smoking, diet etc.
- Regular exposure of pollutants like dust, gases, metals, chemicals etc. accumulate in our body and act like Dooshi visha (cumulative toxicity) which accelerate the aging process.
- **CAUSE -** cumulative toxicity which in the perspective o f Agadtantra is similar to the concept of Dooshi visha.
- **SOLUTION. -** Dooshi Vishari, Bilwadi agada, vishagna dravyas & Rasayanadravyas are very capable of dealing with all the cases of cumulative toxicity and also have various anti-aging properties like anti-oxidant, free radical scavenging effect, immunomodulatory effects etc.

- Similarity between Aging and Cumulative toxicity (Dooshi Visha) Acharya Sushruta pointed out
- Sthavara (inanimate), Jangam (animate) or Krutrim (artificial) poison, which due to accumulated nature is not able to come out of the body completely and accumulates in the body for a long time, destroys the body slowly is called Dooshi Visha. It becomes Avritta by Kapha (lipophilic binding) and accumulates in that state for years.

• Role of Agada in delaying aging

- This whole process of Dooshi Visha can be easily understood with the concept of bioaccumulation. Bioaccumulation refers to the aggregation of substances, such as pesticides, other inorganic or organic chemicals increature. Most of the bioaccumulative chemicals are fat-soluble so that they have a tendency to lodge primarily in fat deposits or in the fatty substances in blood and condition that arises as a result of the decay of tissues and cells. Many such symptoms which are caused by aging are very similar to the symptoms arising from the effects of the cumulative poison.
- Here Agadas helps in Motivates enzyme activity, cleanses the minute channels, makes organs active, enhances the colour and luster, enhances the virility, slows down the aging process, nourishes the cells & tissues and improves energy.

• Agadas are extremely useful in the removal of toxins and free radicals from the body due to their antioxidant and anti-toxic effects, as a result, the aging process slows down and the body remains healthy for a long time.. They also have the anti bacterial, anti fungal, anti-histaminic and immunomodulatory actions which protect us from seasonal diseases from time to time and strengthen our immune system.

• Cancer, which is being found in abundance in today's time. The death rate from cancer is also very high. Cancer can be taken under diseases arising from accumulated toxicity as it also slowly affects the body. Dushivishari Agada has anti-teratogenic effects which is helpful in the prevention of cancer.

• vishghna dravya - vishghna dravya in either flushing out or neutralization of toxins from the body. Vishagna dravya works on concept of Samana pratyarbdha, the inherent qualities of the predominant mahabhutas. Mahabhuta that may exert neutralizing effect by making the cells more strong, inhibits the absorption of virus & increasing the various metabolic activities.

• VISHAGNA-Dushi vishari agada ,Dashanga lepa , Mahamanjistadi kashaya , Chandanasava, Shireeshadi agada , Khatakakhadiradi kashyaya , vishagna gana , Varnyagana- chandana, punnaga, padmaka, ushira, madhuka, manjista, sariva, durva., Vishanashaka lepa= shirisha & shinduvara.

Major references of vishaghna drugs in Ayurveda - shatvirechanashataasritya adhyaya, Dravya sangrhaniya adhyaya, Sushruta sutrasthan, shodhanadigana sangrah,

• Visha Vegas and detoxify the blood.23, Shyamadi gana, Anjanadi gana, Utpaladi gana, Sarivadi gana, Patoladi gana. The properties of visha are just opposite of ojas in Ayurveda is considered essence of all the seven Dhatus & represent the Bala/ Biological strength.which include immune strength.Ojas is considered asresistance to decay and degeneration of the body and immunity against the disease. Infacts, visha has its actionon ojas.these vishagna dravyas are ojovardhaka, jeevaniya hence helps in prevention of aging, cures the disease & helps in

promotion of health also. Rasayana theraphy – poly herbal combination or single drugs helps in reguvination of cells act as good immune stimulators, and adaptogens.like Amalaki rasayana, ghruta, dugdha, Amruta rasayana,Aswagandha Rasayana, ect. Helps in all aspects means prevention of early ageing, curative of disease which commonly occur in old age group and promotion of health in geriatrics too. Anti ageing is the need of an hour so attempt will be made on this topic, Remaining things will be discuss during presentation. The properties of visha are just opposite of ojas. Ojas in Ayurveda is considered as quintessence of all the seven Dhatus and represent the Bala or biological strength which include immune strength. Ojas is considered as resistance to decay and degeneration of the body and immunity against the disease. Infact, visha has its action on ojas (ultimate essence of the body). The properties of visha are just opposite of ojas. Ojas in Ayurveda is considered as quintessence of all the seven Dhatus and represent the Bala or biological strength which include immune strength. Ojas is considered as resistance to decay and degeneration of the body and immunity against the disease. Infact, visha has its action on ojas (ultimate essence of the body). The properties of visha are just opposite of ojas. Ojas in Ayurveda is considered as quintessence of all the se he properties of visha are just opposite of ojas. Ojas in Ayurveda is considered as quintessence of all the se

COSMETICS – THE EXPEDITION FOR SENESCENCE

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ABSTRACT

Ageing is the process during which structural and functional changes accumulate in an organism as a result of the passage of time. Skin ageing is a complex biological process influenced by a combination of endogenous or intrinsic and exogenous or extrinsic factors. To look better, younger and to care for our skin we buy skin products but because of the ingredients used in cosmetic products for long term acts as an accelerating factor for ageing. We often talk about how many of today's cosmetic manufactures put cheap, chemical ingredients in their skin care products that aren't good for our skin. Long run usage of those cosmetics accumulates within the body and cause side effects like irritation, allergic hypersensitivity and increased susceptibility to infections and also results in early ageing of the skin by damaging the skin tissues. People have been using beauty aids from times immemorial and will continue using them. Everyone feels that he/she should look clean, attractive, young and beautiful. So most of the people are around cosmetic products which mainly includes chemical sunscreens, mineral oil and certain alcohols which naturally leads to premature ageing of the skin over the time usage. Hence this says that cosmetics with certain chemical ingredients acts as an accelerating factor for ageing.

KEYWORDS: chemicals, skin ageing, side effects

INTRODUCTION

AGEING

Ageing is the process during which structural and functional changes accumulate in an organism as a result of the passage of time.[1]

As per medical terms it can be defined as the sequential or progressing change in an organism that leads to an increased risk of debility, disease and death.[2]

COSMETOLOGY-

According to Drugs and Cosmetics Act (India) 1940. Cosmetics may be defined as any substances intended to be rubbed, poured, sprinkled otherwise applied to human being for cleansing, beautifying, promoting attractiveness. The word cosmetic is derived from the Greek word 'Kosmetical' which means skill in arranging .The root word 'cosmos' means order. Beauty is born of orderly life style. Cosmetology is the science of alternation of appearance and

modification of beauty. It includes the treatment of skin, hair and nails.3 The concept of cosmetics and beauty is as old as human civilization. As per the Drug and Cosmetic Act 1964, cosmetic products should not contain mercuric compounds. The demand of cosmetic products have been increased in present era, which results in massive production without following standard guidelines. As per studies, the typical woman uses about 12 beauty products daily containing 168 different chemicals within which many were harmful to our body. Toxins can be absorbed in the bloodstream in just 90 seconds The National Institute of Occupational Safety and Health (NIOSH) analyzed 2983 chemicals used in personal care products.10,500 industrial chemicals used as cosmetic ingredients. More than 125 ingredients are suspected of causing cancer.4

MATERIAL AND METHODS:

Information collected from dermatology texts and from journals.

AGEING OF SKIN-

Skin ageing is a complex biological process influenced by a combination of endogenous or intrinsic and exogenous or extrinsic factors. With ageing the outer skin layer (epidermis) thins, even though the number of cell layers remains unchanged. The number of pigment containing cells (melanocytes) decreases. The remaining melanocytes increases in size.5 Typically Skin ageing starts around age 25. Ageing skin looks thinner, paler and clear. Even on exposure to UV light breaks down your skin's connective tissue –collagen and elastin fibres which lie in the deeper layer of the skin (dermis).Dry and unprotected skin ages faster than hydrated and protected skin. "As we grow older, the hydration level in our skin cells decreases, which leads to fine lines".6

TYPES OF SKIN AGEING:

As the number of candles on your birthday cakes increase, so do the signs of ageing.

Basically is of two types- Intrinsic

Extrinsic

INTRINSIC AGEING- It is the inevitable, genetically determined process that naturally occurs. It is determined by each person's genetic clock and is affected by the degenerative effects of free radicals and the body's inability to correctly repair the damage. If very deep wrinkles and a lot of sagging skin run in the family, you may notice it in your own skin.7

EXTRINSIC AGEING- It is caused by external factors and these are what you can pay attention to slow down the ageing process. The greatest cause of extrinsic ageing is photo-damage or exposure to UV light from the sun. Other environmental factors, such as pollution, play a role as well. Other measures like sun exposure, smoking, alcohol use, diet and wrinkles are yet another culprit.8

SEVEN SIGNS OF SKIN AGEING-9

1 Fine lines and wrinkles

2 Dullness of skin

3 Uneven skin tone

4 Dry skin

5 Blotchiness and age spots

6 Rough skin texture
7 Visible pores

OTHER SIGNS OF SKIN AGEING-

1 Sagging of skin
2 loss of volume
3 loss of elasticity

DISCUSSION:

We often talk about how many of today's cosmetic manufactures put cheap, chemical ingredients in their skin care products that aren't good for our skin. Sometimes the ingredients used in the cosmetic products not only fail to nourish and soothe skin they can actually worsen its condition, leading to more wrinkles, fine lines and dryness in future. Chemicals used as cosmetic ingredients includes carcinogens, harmful ingredients like placentine, hydroquinone, petro chemicals, heavy metals like lead, arsenic etc., most of the fairness creams contain steroids. Long run usage of those cosmetics accumulates within the body and cause side effects like irritation, allergic hypersensitivity and increased susceptibility to infections and also results in early ageing of the skin by damaging the skin tissues.10

To look better, younger and to care for our skin we buy skin products but because of the ingredients used in cosmetic products for long term acts as an accelerating factor for ageing. They cause skin irritation, corrosive and overtime lead to increased dryness which means more visible fine lines and wrinkles. 11

5 INGREDIENTS THAT CAUSE WRINKLES- IN YOUR SKIN CARE PRODUCTS12

To help you avoid those products that will only derail your anti -ageing efforts, we have got five key ingredients that you must avoid if you want to be good to your skin.

- **SULFATES:**

These are harsh, corrosive and drying ingredients you will find in your cleansers, body washes, shampoos and even in your tooth pastes. These chemicals are also used in floor scrubbing solutions, engine degreasers and car-wash soaps. They cause skin irritation and corrosion and over time lead to increased dryness. That means –more visible fine lines and wrinkles. Studies have indicated that sulfates can age the skin.

- **CERTAIN ALCOHOLS:**

In our anti-ageing skin products you may find ingredients like SD alcohol, ethanol, methanol, benzyl alcohol, isopropyl alcohol and ethyl alcohol. These are all drying ingredients that strip away skin's natural oils and lead to premature aging and irritation.

- **DEA, MEA, TEA:**

These are ammonia compounds.in additional to potential links to cancer, these ingredients are dying to the skin and hair. They can also cause allergic reactions, resulting in redness and inflammation. All of these results produce on overall ageing effect.

- **MINERAL OIL:**

It comes from petroleum and it form a sort of film over the skin, clogging pores and hindering the skins natural ability to cleanse itself. With extend use it can encourage acne and actually

irritate and inflame skin. The result is an ageing effect that can make fine lines and wrinkles much more visible.

- **CHEMICAL SUNSCREENS:**

Chemical sunscreens like oxybenzone, benzophenone-3 and octyl methoxycinnamate can actually encourage free radical damage when exposed to sunrays. If the formula contains a good balance of antioxidants with the chemical sunscreens, the damage may be limited. Incase not will lead to ageing of skin.

THE COMMON SIDE EFFECTS OF BEAUTY AIDS ARE-13

1) Irritant reaction i.e., contact dermatitis due to chemical reaction
2) Allergic hypersensitivity
3) Hyper/Hypo pigmentation (at the site of application)
4) Photosensitivity reaction
5) Folliculitis

Hence beauty aids should be used on the advice of experts. And these side effects turns into complications resulting in premature ageing of skin on long term usage of these beauty products.

CHEMICAL COMPONENTS AND THE COMMON SIDE EFFECTS OF THE COMMONLY USED BEAUTY AIDS-[14]

CLEANSING AGENTS:

Cleansers are any agents which remove sebum or foreign particles from the skin .the spectrum of cleansers varies from very drying to a very moisturizing effect. It includes

1) Soaps –alkaline, neutral, superfatted and modified soaps. Soaps containing chemicals like carbolic acid cause skin rash and dry skin.
2) Antimicrobial bar soaps – locally acting antiseptics
3) Soap free cleansers - cleansing creams and lotions. Less irritant compared to soap.
4) Abrasive cleansers-exfoliate skin, unplug skin pores or to remove dead sensitive skin. May cause inflammation and damage to the hair follicles.

BLEACHING AGENTS:

Includes bleaching of skin and hair. Ammoniated compounds used in bleaching creams can cause irritation to the skin.

These products results in dryness, peeling of skin layer, increases open pores, inflammation of skin and wrinkling of skin on long term usage.

CONCLUSION:

People have been using beauty aids from times immemorial and will continue using them. Everyone feels that he/she should look clean, attractive, young and beautiful. So most of the people are around cosmetic products which mainly includes chemical sunscreens, mineral oil and certain alcohols which naturally leads to premature ageing of the skin over the time usage. Hence this says that cosmetics with certain chemical ingredients acts as an accelerating factor for ageing. So one should be conscious before using any cosmetic product and also should avoid long term usage of these products. And should use only on expert advise

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LAVANA VIS A VIS SALT – A POTENT XENOBIOTIC IN AGEING

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ABSTRACT

Lavana has been given utmost importance in everyday life of human beings. It has been the taste, without which food becomes unpalatable. It is considered as both ahara and aoushada dravya in Ayurveda. It is one among the Sadrasa and five basic tastes. Lavana varga is extensively elaborated in the classics, wherein Panchalavana is predominantly utilized. Panchalavana include Saindhava, Sauvarchala, Vida, Romaka/Audbhida and Samudra. It is said to possess various karma like Agnideepana,Pachana Ruchya Netrya Hridya Vrishya and Avidahi. Acharya Caraka has included Saindhava lavana in Nitya Sevaniya Dravya. Also, lavana is one among Trividha Atisevana Varjya Dravya. On exceeded intake it causes accumulation of doshas leading to doshotkshlesha. Its excessive usage causes glani, dhatu\ shaitilya, shareera dourbalya which further leads to the senescence of the cells with the features such as akalaja khalitya, palitya, vali, palita. According to contemporary sciences, body needs two varieties of supplements for proper growth and metabolism. They are Micronutrients and Macronutrients. And salt is categorized under Macronutrients. It flavours food and is used as a binder, stabilizer and food preservative. Today due to the rising industrialization and economic benefits salt has been considered one among white poisons, being the dreadful reason for various disorders. It's been adulterated with many other chemicals in the name of fortification and being bleached to make it presentable. Using it as preservative in various eatables has made to cross the daily intake of salt leading to various diseases. Many researches have been conducted to determine the relation between the salt intake and ageing. Lowering sodium intake can slow down aging, especially in obese individuals. Obese/overweight teens in the high sodium intake group had significantly shorter telomeres compared with normal-weight teens in the same group. Telomeres are nucleoprotein structures that cap the ends of eukaryotic chromosomes and prevent chromosome fusion, thereby maintaining genomic stability. However, each cell division is associated with loss of a part of the telomere, such that as the telomeres shorten with aging, they reach a critical length and can no longer replicate. The cells then undergo senescence or die. Obesity is associated with high levels of inflammation, which also hastens telomere shortening and increases sensitivity to salt, which may help explain why higher sodium intake had a greater effect in that group. The high salt intake is directly linked to the telomere shortening and death of the cell which progresses ageing. Hence, this article is an attempt to showcase the potent deleterious effects of over usage or wrong usage of salt on the body.

Method;

All the required literatures and research articles have been compiled to highlight how salt acts as xenobiotic in causing the cell ageing.

Results:

Lavana is one among the Trivarjya atisevaneeya dravya. High intake causes khalitya, palitya, vali, palita etc. Excess intake of salt causes telomere shortening specially in obese individuals. Also results in various disorders like hypertension, stroke, cardio vascular diseases.

Conclusion:

Hence, low sodium / salt intake is recommended to avoid ageing and various cardiac, vascular and renal disorders. The quality of the salt we intake also is of much importance to avoid carcinogenicity.

INTRODUCTION:

"SALT is to food, what soul is to the body."

Lavana has been explained as both Dravya and Rasa in Ayurveda. Saindhava lavana is one among Nityasevaneeya dravya. There are mainly six varieties of lavana explained in the classics, viz., Saindhava, Vida, Samudra, Romaka, Sauvarchala and Chullika. Lavana in common has properties such as Ushna, Tikshna, Anatiguru, Anatisnigdha, Upakledi, Visransansamartha, and Annadravyarucikara. Acharya Caraka highlights on the excess use of lavana, and ill effects caused by it. It has been included under trividha varjya atisevaniya dravya. According to contemporary sciences, commonly used salts are rocksalt/ sodium chloride salt. Though the salt is the macronutrient, it should be consumed within the daily limits of consumption. The excess consumption of salts leads to the destruction of the tissues due to senescence. It may also lead to various systemic disorders.

METHODOLOGY:

The review of various Ayurveda literatures such as Caraka Samhita, Sushruta Samhita, Ashtanga Hrudaya, Ashtanga Sangraha, various Nighantu has been done for the detailed information of Lavana. Various textbooks and research articles have been referred for the information regarding salt.

RESULTS:

Lavana – Etymology:

'Lunati iti lavanah'.[1]

That which possess the property of Chedana.

Properties of lavana rasa:

Lavana is one among sadrasa viz., Madura, Amla, Lavana, Katu, Tikta, Kashaya.

Lavana rasa causes too much of salivation in the mouth, burning sensation in the throat and cheeks and makes food tasty.2

Different types of Lavana

SAINDHAVA LAVANA

• Synonyms; Saindhava, Manimantha, Sheetashiva, Sindhujam, Naadeeyam

• Vernacular names;

English – Himalayan pink salt, Himalayan rock salt, Halite

Hindi name – Senda namak

Kannada – Saindhava uppu

Tamil name – Intuppu

• Types – 2 varieties – Sweta Saindhava and Rakta saindhava
• Chemical composition – 98% Sodium chloride and other minerals like Iodine, lithium, magnesium, Phosphorus, Potassium, Chromium, Manganese, Iron, Zinc, strontium etc.
• Rasa panchaka;
Rasa – lavana, Madhura,
Guna – Laghu, Snigdha, Sukshma
Veerya – Sheeta
Vipaka- Madhura
Karma – Deepana, Pachana, Ruchya, Vrishya, Nethrya
• Doshagnata – Tridoshahrt
• Rogaghnata – Shotahara, Vibandhaghna, Vranadoshahara3

SAUVARCHALA LAVANA

• Synonyms - Akshapaka, Ruchaka, Hridyagandhaka, Tilaka, Krsnalavana, Dhatumat
• Vernacular names –
English – Sochal salt
Hindi – Kala namak
Kannada – Kari uppu
• Chemical composition – Sodium chloride 97.8%, Sodium sulphide 0.918%, Iron – 0.030%, Insoluble matter 0.07%
• Rasa Panchaka –
Rasa – Lavana
Guna – snigdha, Laghu, Vishada
Veerya – Ushna
Karma - Rochana, Hridya, Bhedana, Deepana, Pachana
• Doshagnata – Vatanuth, Pittala
• Rogagnata - Gulma-Shula-Vibandhaghna3

VIDA LAVANA

• Synonyms; Pakya, Kruthakam, Dravidam, Asuram, Supakya, Vidgandha
• Vernacular names;
English – Ammonium salt
• Chemical composition – 93.7% Sodium chloride and Total sulphides 0.121%, Iron – 0.0089%
• Rasa panchaka;
Rasa – lavana,
Guna – Laghu, Rooksha, Vyavayi, teekshna
Veerya –Ushna
Karma – Deepana, Ruchya,
• Doshagnata – Kapha-vatanulomana
• Rogaghnata – Vibanda, Anaha, Visthambha, Udarda, Gourava, Shoola 3

ROMAKA LAVANA

• Synonyms - Paamshulavana, Romaka, Vasuka, Vasu, Gadalavana, Shakambhariya Ushara, Pamsavakshaara, Aurva and Saarvaguna.
• Vernacular names –
English – Sambhar salt
Hindi – Sambhar namak
• Chemical composition – Sodium chloride 97.1%, Total sulphide 0.060%, Sodium bicarbonate – 0.049%
• Rasa Panchaka –
Rasa – Madhura
Guna – Laghu, teekshna, Sukshma,
Veerya – Ushna
Vipaka - Katu
Karma - Bhedi, Abhishyandi
• Doshagnata – Vataghna, Pittala
• Rogagnata - Gulma-Shula-Vibandhaghna3

SAAMUDRA LAVANA

• Synonyms; shara, Shishira, Samudraja, Saagaraja. Akshiva, Vasira, Lavanodadhisambhava
• Vernacular names;
English –Sea Salt
• Chemical composition – Apart from sodium chloride contains Magnesium, Potassium, Calcium, sulphate
• Rasa panchaka;
Rasa – Madhura, Katu, lavana
Guna – Guru, Snigdha
Veerya – Ushna
Vipaka- Madhura and katu
Karma – Deepana, Bhedi, Saksharam Vidahi,
• Doshagnata – Shleshmala, Vatanut
• Rogaghnata – Shulaghna3

Lavana- trividha atisevaniya varjya dravya;

Lavana has properties such as ushna, teekshna, anatiguru, anatisnigdha, upakledi, visramsanasamartana, annadravyaruchikara, apatabhadra, rochana, panchana. Excess consumption leads to dosha sanchaya, glani, shaitilya, dourbalya, shareera abhinivrutti. The people of villages, cities, communes and districts who use it continuously suffer from glani(depression), shitilatwa of mamsa rakta (laxity of body tissues), aparikleshasaha (intolerance to pain). Certain people use it with milk. All these people suffer from ageing with signs such as khalitya, palitya, akalaja vali-pali.4

Contemporary View:

Due to changing lifestyle, transforming diet patterns, rapid industrialization, dependence on processed food, people are consuming more energy dense foods that are high in salt and sugars. Salt is the primary source of sodium and increased consumption of sodium is associated with

hypertension and increased risk of cardiovascular diseases and stroke.

Daily limit of consumption;

The WHO recommends that adults consume less than 2,000 mg of sodium, equivalent to 5 grams of salt per day.5

Processing of Salt:

Salt is obtained from two sources: rock salt and brine. Rock salt is simply crystallized salt, also known as halite. Brine is water containing a high concentration of salt.6 Iodized salt has been used to correct these conditions since 1924 and consists of table salt mixed with a minute amount of potassium iodide, sodium iodide, or sodium iodate. A small amount of dextrose may also be added to stabilize the iodine. In "doubly fortified salt", both iodide and iron salts are added. Sodium/ Potassium ferrocyanide also known as yellow prussiate of soda, is sometimes added to salt as an anticaking agent. Potassium Ferrocyanide is an anti-caking agent that is needed to process salt and is allowed to be used in food-grade salts, however, only in the suggested quantities. Ferrocyanides help prevents powdered and granulated ingredients from forming lumps. It is slightly toxic, since adding acid to an aqueous solution releases toxic hydrogen cyanide gas. Although not mutagenic, it can cause irritation, if ingested, inhaled, or if it comes into contact with skin. It is therefore toxic in large amounts and accumulates in the body in any case because iodised salt is becoming increasingly common in most foods.7

Effect of salt on oxidative stress and ageing:

High-salt diet is known to induce or aggravate hypertension in animal models of hypertension and in humans. In the person with high salt intake and hypertension, there will be endothelial dysfunction i.e., altered vascular permeability due to impairment in Nitric oxide (NO) production. High salt intake decreases both plasma levels and urinary excretion of nitrates, i.e. reduced availability rather than decreased production of NO. NO interacts with superoxide anion, forming the potent oxidant peroxynitrite. Increased superoxide production in both vasculature and kidney was extensively reported in those with high intake of salt, inturn increasing the oxidative stress in the organs. Increased Reactive oxygen and nitrogen species i.e. RONS levels lead to cellular senescence, a physiological mechanism that stops cellular proliferation in response to damages that occur during replication. Senescent cells acquire an irreversible senescence-associated secretory phenotype (SASP). RONS induce cellular senescence acting on various components of SASP. Aging is characterized by features such as wrinkling of skin, loss of elasticity, laxity, and rough-textured appearance of skin, greying of hair etc.8,9

Early Cellular Aging: Salt and the Telomeres

Lowering sodium intake can slow down aging, especially in obese individuals, according to results presented at the recent American Heart Association (AHA) Meeting on Epidemiology and Prevention/Nutrition. Obese/overweight individuals with high sodium intake group have significantly shorter telomeres compared with normal-weight with high sodium intake. Each cell division is associated with loss of a part of the telomere, such that as the telomeres shorten with aging, they reach a critical length and can no longer replicate. The cells then undergo senescence or die. Thus, TL can serve as a biological clock to predict the lifespan of a cell or an organism. It is well-recognized that both obesity and high sodium intake are important risk factors for age-

related diseases such as cardiovascular disease, stroke and cancer. Obesity, a chronic state of inflammation, has been shown to be inversely associated with telomere length in adults in a recent meta-analysis. In vitro and in vivo studies reported that high salt diets through oxidative damage have promoted cell senescence, retarded growth and markedly decreased the life span. In addition, high salt diets have promoted tissue inflammation and accelerated development of autoimmunity. A high salt condition also increased reactive oxygen species. Both inflammation and oxidative stress reduce telomere length.10

Salt and Carcinogenicity:

Areas where people ingest more sodium chloride show an elevated incidence of gastric cancers.

High salt intake causes damage of mucous membrane In stomach, as evidenced by the existence of malondialdehyde in extracts of gastric mucous membranes after sodium chloride administration. Malondialdehyde, a product of lipid peroxidation that could be generated by damage of cell membranes, has previously been reported to be mutagenic to bacteria and mammalian cells and carcinogenic to rats. Recently, malondialdehyde-deoxyguanosine adducts were detected in human liver. It is therefore likely that sodium chloride-lipid peroxidation-malondialdehyde-mutation scenarios play a role in carcinogenesis in the stomach. H. pylori infection in the mucosa of the stomach results in gastritis, which may increase formation of nitric oxide as well other proliferative stimuli. It is therefore a factor that might facilitate accumulation of gene alterations.[11]

Health effects of excess salt intake:[12]

1. Hypertension - Increased salt consumption may provoke water retention, thus leading to a condition of high flow in arterial vessels. Excessive salt intake may induce several adverse effects, causing microvascular endothelial inflammation, anatomic remodeling, and functional abnormalities, even in normotensive subjects. hypertension may occur only when the ability of the kidney of excreting sodium is impaired. Further evidence has shown that the BP response to changes in salt intake in diet has a significant variability among individuals in the general population. This phenomenon was defined as salt-sensitivity of BP.

2. Water retention: When humans go from a low to a high salt intake, there is retention of salt and thereby water, and this expands the extracellular volume. This increase in extracellular volume is a trigger for various compensatory mechanisms.

3. Direct effect on stroke: About one-third of people are sensitive to the sodium component of salt. This means that eating foods with too much salt can increase the amount of blood in the arteries, raising blood pressure and increasing the risk of stroke.

4. Direct effect on left ventricular mass: Among various genetic, haemodynamic and humoral determinants, dietary salt intake has been demonstrated to influence left ventricular mass in hypertensive disease.

5. Cancer of the stomach: Foods that contain high concentrations of salt are irritating to the delicate lining of the stomach. It is possible that this makes H-pylori infection more likely or more severe and that the H-pylori infection then leads to stomach cancer.

6. Proteinuria and renal disease: Increasing salt intake increases urinary protein excretion and markedly increases the rate of deterioration of renal function. salt intake relates, to the amount of

protein or albumin excretion, which is an important risk factor for the development of kidney disease and CVD.

DISCUSSION:

Lavana though given utmost importance as ahara and aoushada dravya, has certain limitations

in the usage. Caraka Acharya, has included Saindhava lavana under Nitya sevaneeya ahara. But at the same time, when the individual consumes it in excess, suffers from various diseases such as glani, dhatu shitilatwa, asahishnuta, dourbalya, akalaja vali, pali, khalitya, palitya. This has been established by the contemporary researchers which says that high intake of sodium diet, leads to the ageing and damage of viscera due to production of various free oxygen radicals which in turn gives rise to oxidative stress. In addition, it leads to inflammation in the body tissues, and cause various diseases such as hypertension, cardiovascular disease, osteoporosis, cancer, renal diseases, obesity etc. Hence, one should avoid packed & canned food items, pickles, salted nuts, junk foods, soups and keep a check on daily sodium intake in the food.

Conclusion:

Lavana is regarded as both nityasevaneeya and varjya dravya, because of which it should be consumed in proper and required quantity daily. One should not exceed the daily limit of consumption. Salt been explored in depth by modern sciences, explains about pros and cons of salt intake. One should select the salt which is less processed with chemicals and has least effects on health. Exceeded intake of it will cause early ageing, damage of various organs and cause various disorders.

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CRITICAL ANALYSIS OF ROLE OF EXTRINSIC FACTORS IN AGEING W.S.R TO GARA VISHA

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Age is a concept of Longevity in Human beings. With ageing the mechanism of homeostasis is slow, hence the response to various stresses takes longer to revert back to normal structure and function. Longevity of an individual depends upon the following factors

1. Intrinsic genetic process, the genes controlling response to endogenous and exogenous factors initiating apoptosis.
2. Environmental factors-Consumption and Inhalation of harmful substances, types of diet, role of antioxidants etc
3. Lifestyle of the individual such as diseases due to alcoholism, smoking, bronchogenic carcinoma, drug addition, etc
4. Age related diseases-Diseases like atherosclerosis, ischemic heart diseases, diabetes melitus, hypertension, osteoporosis, Alzheimer's disease, Parkinsons disease etc.

Cellular basis of Ageing

Individual age because their cells slowly decline to function. This is reflected in structural and functional changes in different organs and system of the human body with ageing. Changes at cellular level and subcellular level linked with ageing are supported by the following theories.

1.DNA damage in Ageing-Extrinsic agents like physical, chemical and biologic agents targets the nuclear and mitochondrial DNA of the cell. Normally, damaged DNA is repaired by DNA repairing enzymes but in ageing the repair mechanism start to weaken or fail.

2.Free radical theory in Ageing- With ageing there is low metabolic rate with generation of toxic oxygen radicals, which fall to get eliminated causing their accumulation and hence cell damage due to mitochondrial injury.

3.Mitochondrial damage in ageing- With ageing, mitochondrial production of ATP declines and oxygen free radicals rise. This results in accumulation of oxidative damage to mitochondrial proteins and DNA.

4.Activation of Tumor suppressor genes-Tumor suppressor genes regulate cell division and prevents cancer and senescence. But these genes are activated during ageing.

Organ Changes in Ageing

All organs show deterioration with ageing, following organs shows evident morphological and functional decline.

1. Cardiovascular system-Atherosclerosis, Arteriosclerosis, Loss of elastic
2. tissue from aorta and major arterial trunk causing their dilatation.
3. Nervous system- Diseases like Alzheimer's and Parkinsonism.

4. Musculo-skeletal system-Degenerative bone disease, frequent fractures
5. due to loss of bone density
6. Eyes- Deterioration of vision due to cataract and vascular changes in retina
7. Hearing-Disability in hearing due to senility is due to otosclerosis
8. Immune system-Reduced IgG response to antigens, frequent and more
9. severe infection
10. Skin-Laxity of skin due to loss of elastic tissue
11. Cancer-Different types of cancer1

Extrinsic factors in Ageing

1.Extrinsic factors in ageing include a vast variety of Pollutants. Majority of them causes trivial irritation to the upper respiratory pathways, while others may lead to acute or chronic injury to the lungs, and some are implicated in the causation of Lung cancer. Whereas some pollutants are prevalent in certain industries such as coal dust, silica, asbestos and others are general pollutants present widespread in the ambient atmosphere like sulfur dioxide, nitrogen dioxide, carbon-monoxide etc. The general environmental pollutants are acted upon by sunlight to produce secondary pollutants such as ozone and free radicals capable of oxidant cell injury to respiratory passage.

2.Tobacco smoking is the most common cause of disease and death. Tobacco related disease include different types of Lung Cancer, COPD, cerebro-vascular accidents, coronary heart disease, early menopause in Smoker women. Tobacco is one of the exogenous agents in the production of free radicals which results in cell injury and chemo toxicity.

3.Alcoholism, especially chronic alcoholism produces widespread injury to the organs and system. Most of the alcohol related injury to different organs is due to the toxic effect of alcohol and accumulation of its main toxic metabolite, acetaldehyde in the blood. Other proposed mechanism of tissue injury in chronic alcoholism are free radical mediated injury and genetic susceptibility to alcohol dependance and tissue damage.

4.Ionising radiation causes acute cell damage, genetic damage by mutation and malignant transformation of cells. Ionising radiation is widely employed for diagnostic purpose as well as for radiotherapy of malignant tumors. Radiation induced cell death is induced by radiolysis of water in the cells with generation of toxic hydroxyl radicals2. The hydroxyl radical damage the cell membrane and attack the DNA of the target cell and leads to Mutation and Apoptosis3.

Xenobiotics is defined as chemicals to which an organism is exposed to, that are extrinsic to the normal metabolism of that organism4. Environmental Pollutants, Tobacco, Alcohol, Ionising radiation are all substance that comes under Xenobiotics. Gara Visha is a unique concept of Vishachikitsa. It is a combination of nontoxic substances5. Both Gara and Xenobiotics are extrinsic. Gara is a type of poison which undergoes metabolism after certain period of time and Xenobiotics is a chemical which attains toxic concentration without metabolism. The lakshnas of gara Visha mentioned by different acharyas shows that almost all major systems are affected by gara Visha. The treatment mentioned in Garavisha are Vamana Karma, pathyahara, hrit vishodhana by hema choorna6.

Vamana karma will eliminate the poison from the body, Pathyahara will prevent the further aggravation of the condition, Hrit vishodhana will protect the hridaya against the poison Visha is having gunas antagonistic to ojas and the seat of Para Ojas is Hridaya. When a patient who is afflicted with Visha is administered with a Vishahara dravya (Anti toxic preparation), Ojas of the patient is benefitted. Ojas can be considered as antioxidant or immune booster. Henceforth, all the anti-toxic preparation can act as immune boosters or Ojo vardhaka.

Conclusion-All agadas are by default rasayanas, as they have the abilty to increase Ojas. Agadas like Vilwadi Agada, Kalyanaka ghritha ,Paravada Amisha Rasa, Murvadi Choorna, etc are beneficial both in alleviating the Visha and also in enhancing the Ojas and there by arrest the ageing. Ageing is a natural process, but this natural process is affected by many extrinsic factors generated in the environment. This can act as xenobiotics in the body, the antitoxic formulation which are mentioned in the context of garavisha is beneficial in its treatment as it is purificatory, anti-toxic, cardio-protective, anti-oxidant and immune boosters. Further research on this will open up the door to a novel treatment protocol in age-related diseases by extrinsic factors.

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CONCEPTUAL STUDY OF ACTION OF BILWADI GULIKA IN CHEMOTHERAPY INDUCED HEPATOTOXICITY.

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ABSTRACT

Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020 while the most common among are breast cancer (2.26 million cases) followed by lung cancer (2.21 million cases). In India there are about 8, 00,000 new cancer patients get\registered with the national cancer registry program every year. Factors such as life style, level of physical activity, environmental pollution, personal hygiene, food are the major causing factors of cancer. Conventional management of cancer includes surgery, radiation therapy, hormonal therapy, targeted therapy and palliative therapy. Chemotherapy drugs and radiation therapy are highly toxic and both damage adjacent healthy cells. Side effects may be acute (occurring within few weeks after therapy), intermediate or late (occurring months or years after the therapy).Some important side effects of chemotherapy are nausea, vomiting, diarrhoea, alopecia, constipation etc. whereas radiation therapy though administered locally can produce systemic side effects such as fatigue, anorexia, vomiting, sleep disturbances, alteration in taste, headache ,anaemia, constipation etc. Late complication of these therapies includes laryngitis, pharyngitis, esophagitis, hepatotoxicity, infertility, persistent dysphagia, cognitive defects, fatigue etc. Hepatotoxicity from chemotherapy occurs frequently from an unpredictable reaction. Despite remarkable advances in our understanding of the mechanism of action, pharmacodynamics, and inter relationships between liver and chemotherapy, the underlying aetiology of hepatic toxicity for various agents remains unexplained. Ayurvedic have a supportive role for the management of these side effects. Agada Tantra is a specialized branch of Ayurveda which deals with the management of toxicity with numerous formulations. Bilwadi Agada is one such formulation mentioned in classics as the first drug of choice in acute toxico-pathological conditions having action in hepato-toxicity. This review article places of interest in the significant role of anti-toxic formulation mentioned in Agada Tantra.

KEY WORDS Cancer, Chemotherapy, Hepato toxicity, Bilwadi gulika.

INTRODUCTION

Cancer is a group of disease involving abnormal cell growth with the potential to invade or spread to other parts of the body. In 2015, about 90.5 million people had cancer. As of 2019, about 18 million new cases occur annually. Annually it caused about 8.8 million\ deaths (15.7% of deaths).The most common type of cancer in males are lung cancer, prostate cancer, colorectal

cancer, and stomach cancer. In females, the most common types are breast cancer, and cervical cancer.[1]

There is no single cause of cancer. Studies proved that interaction of many factors including genetic, environmental, or constitutional characteristics of the individual is involved. Risk factors for cancer are said to being inherited genetic defects, lifestyle factors, occupational exposure to chemicals, radioactive materials and asbestos, environmental exposure to UV radiation, radon etc[2].

The signs and symptoms caused by cancer will vary depending on the part affected in the body. Some of the general signs and symptoms are fatigue, lump or area of thickening that can felt under the skin, weight changes, skin changes, persistent indigestion or discomfort after eating food, unexplained bleeding or bruising, persistent fever etc3.

People are exposed to many carcinogenic agents like arsenic, asbestos, benzene, beryllium, tobacco, alcohol, ionizing radiation etc. in various forms in small qualities, knowingly or unknowingly.1 These get piled over a while in the body and by getting favourable conditions, results in grievous diseases like cancer. While considering the treatment, chemotherapy and radiation are considered the main treatment procedures for management of cancer. Patients undergoing chemotherapy faces many adverse effects due to the drug and they need to be monitored and managed. Ayurvedic formulation can be used as a supportive medicine as well as for the management of these side effects.

Agada Tantra being the branch of Ayurveda deals with management of toxicity explains various methods for detoxification including usage of several vishagna yogas. Bilwadi gulika is one such formulation which is widely practiced with numerous actions.

AIMS AND OBJECTIVES

1. Collect literary aspect of Cancer, Chemotherapy, and its side effects.
2. Role of bilwadi gulika in chemotherapy induced hepato-toxicity.

MATERIALS & METHODS

1. Literature has been reviewed from both Ayurveda and Contemporary Sciences.
2. Related websites have been searched.

Conceptual Review

Cancer

Cancer is a group of disease involving abnormal cell growth with the potential to invade or spread to other parts of the body. In 2015, about 90.5 million people had cancer. As of 2019, about 18 million new cases occur annually and it caused about 8.8 million deaths (15.7% of deaths).The most common type of cancer in males are lung cancer, prostate cancer, colorectal cancer, and stomach cancer. In females, the most common types are breast cancer, and cervical cancer.1

There is no single cause of cancer. Studies proved that interaction of many factors including genetic, environmental, or constitutional characteristics of the individual is involved. Risk factors for cancer are said to being inherited genetic defects, lifestyle factors, occupational exposure to chemicals, radioactive materials and asbestos, environmental exposure to UV radiation, radon etc2.

The signs and symptoms caused by cancer will vary depending on the part affected in the body. Some of the general signs and symptoms are fatigue, lump or area of thickening that can felt under the skin, weight changes, skin changes, persistent indigestion or discomfort after eating food, unexplained bleeding or bruising, persistent fever etc.[2]

Conventional management of cancer includes surgery, radiation therapy, hormonal therapy, targeted therapy and palliative therapy.

Chemotherapy

The term "chemotherapy" was coined by a German chemist Paul Ehrlich who investigated the use of drugs to treat infectious diseases. Radiotherapy and surgery were the mainstays of cancer management in the 1960s. As micro metastases and recurrence of cancer after surgery and radiation therapy became evident, combination chemotherapy started gaining significance. Publication of the Lindskog article suggesting the success of nitrogen mustard in the treatment of lymphoma had a considerable initial effect on the development of chemotherapy of cancer, including oral derivatives like chlorambucil and ultimately cyclophosphamide. The discovery of actinomycin D pioneered the search for more antitumor antibiotics, including anthracyclines, chromomycins, mitomycin, and bleomycin. The successful management of choriocarcinoma and leukaemia with methotrexate led to further investigations in cancer chemotherapy. (e.g.6-mercaptopurine), 5 -fluorouracil came into the forefront of cancer treatment.4

Function of chemotherapy

The goal of chemotherapy is to inhibit proliferation of cell and multiplication of tumour, thus avoiding invasion and metastasis. But this results in toxic effects of chemotherapy due to effect or normal cell as well. Inhibition of tumour growth can take place at several levels within the cell and its environment.4 Traditional chemotherapy agents primarily affect either macromolecular synthesis or function of neoplasm cells by interfering DNA, RNA, or protein synthesis or affecting the appropriate functioning of the performed molecule. When interference in macromolecular synthesis or function is sufficient, it leads to cell death either due to the chemotherapeutic agent's direct effect or by triggering apoptosis. With traditional agents, cell death may be delayed as a proportion of the cell dies as a result
of a given treatment. So, the treatment may require repeating to achieve a response.

Chemotherapeutic agents according to mechanism of action. 4

1. Alkylating agents (nitrogen mustard, chloromethane, cyclophosphamide etc.) which
1. react with nucleophiles centres on proteins and nucleic acids.
2. Antimetabolites: (methotrexate, pemetrexed, 6-mercaptopurine, 5- fluorouracil,
3. gemcitabine) affect various cellular pathways required for DNA, RNA synthesis.
4. Mitotic inhibitors: (vinblastine, paclitaxel, docetaxel) which interferes with spindle
5. assembly in mitosis.
4. Antibiotics: (actinomycin D, bleomycin, daunomycin) inhibit RNA and DNA
6. synthesis.
5. Anthracyclines (doxorubicin, daunomycin, idarubicin) inhibit RNA and DNA
7. synthesis.

6. Topoisomerase II inhibitors : etoposide
7. Nitrosoureas: carmustine, lomustine.
8. Antibodies: transtuzumab, bevacizumab, cetuximab, targets EGFR, transtuzumab is
8. an antibody against Her2 receptors, bevacizumab is a recombinant humanized
9. antibody to vascular endothelial growth factor, and rituximab is an anti-CD20
10. antibody.
9. Enzyme: asparaginase
10. Agents that inhibit DNA synthesis (hydroxyurea or damage DNA: cisplatin, carboplatin, oxaplatin.)

No Chemotherapy regimen has ever been shown to improve survival in metastatic melanoma. Drugs with anti-tumour activity included decarbazine (DTIC) or orally administered analogue temozolomide (TMZ), cisplatin, and carboplatin, the taxanes (paclitaxel alone or albumin-bound and docetaxel), and carmustine have reported response rate.5

Adverse effect of Chemotherapy

Chemotherapy drugs and radiation therapy are highly toxic and both damage adjacent healthy cells4. Side effects may be acute (occurring within few weeks after therapy), intermediate or late (occurring months or years after the therapy).Some important side effects of chemotherapy are nausea, vomiting, diarrhoea, alopecia, constipation etc. whereas radiation therapy though administered locally can produce systemic side effects such as fatigue, anorexia, vomiting sleep disturbances, alteration in taste, headache ,anaemia, constipation etc. Late complication of these therapies includes laryngitis, pharyngitis, esophagitis, hepatotoxicity, infertility, persistent dysphagia, cognitive defects, fatigue etc. Hepatotoxicity from chemotherapy occurs frequently from an unpredictable reaction.

Hepato toxicity

The liver is one of the largest organs in the human body and the chief site for intense metabolism and excretion. It plays a major role in detoxification and excretion of many endogenous and exogenous compounds; any injury to it or impairment of its functions may lead to many implications on one's health. Hepatic damage is associated with distortion of these metabolic functions. Liver damage is associated with cellular necrosis, increase in tissue lipid peroxidation and depletion of reduced glutathione levels. In addition, serum levels of many biochemical markers like transaminases, alkaline phosphatase, bilirubin, triglycerides, and cholesterol are elevated in liver diseases. Liver diseases pose a serious challenge to international public health. 6

The liver plays a central role in transforming and clearing chemicals and is susceptible to toxicity from these agents. Certain medicinal agents, when taken in overdoses and sometimes even when introduced within therapeutic ranges, may injure the organ. Chemicals that cause liver injury called hepatotoxins. Hepatotoxicity is one of the main reasons behind the withdrawal of a drug from the market.6 Fifty per cent of all acute liver failures and 5% of all hospital admissions are associated with drug-induced hepatotoxicity.

Treatment option for common liver diseases is limited, and therapy with modern medicine may lack in efficacy. The effectiveness of treatments such as those using corticosteroids and interferon's is inconsistent, carries the risk of adverse events, and is often too costly. A

number of plants have been shown to possess Hepatoprotective property by improving antioxidant status. Thus, the efficacy of the drug would be preventive and passive for defending against damages. 6

Chemotherapy induced Hepatotoxicity6

The administration of medications intentionally designed to be cytotoxic inevitably causes negative consequences. The liver is the primary site of metabolism for many of these drugs, and in liver drug reaction may be accounted for while dosing chemotherapy.

All anticancerous drugs can cause idiosyncratic liver injury. Therefore, Hepatoprotectiveagents assume particular importance to preserve liver function. Chemotherapeutic agents can produce liver toxicity through different pathways, resulting in different categories of liver injuries, but these drugs are not homogeneously hepatotoxic. Frequently, anticancer-induced hepatotoxicity is idiosyncratic and influenced by multiple factors.

Certain chemotherapeutic agents must be used with extreme caution in patient with extreme
caution in patient with pre-existing liver disease. These include anthracyclines, taxanes, vinca alkaloids, temsirolimus, erlotinib, nilotinib, pazopanib, ponatinib, and ruxolitinib.

BILWADI GULIKA

Bilwadi gulika7 is one of the formulations mentioned in Astanga Hrudaya under the context
of sarpa visha chikitsa. In Ashtanga Hrudayam, it is mentioned as Bilwadi yoga wheras in other references like Sahasrayogam8, Ayurveda Formulatory of India (AFI)9, Kriya Koumudi10, Visha jyotsnika11as Bilwadi Gulika. It is indicated in various other conditions like Luta visha (spider poison), Unduru visha (rat bite), Vrishchika visha (scorpion bite), Ajirna (indigestion), Gara visha (artificial poison), Jwara (fever).It also possess Bhutaghna (antimicrobial, antiviral) properties.12

LIST OF DRUGS OF BILWADI AGADA[13]

No	Name of the drug	Botanical name	Family	Part used	Quantity
1.	*Bilwa*	*Aegle marmelos*	Rutaceae	*Moola*	1 part
2.	*Surasa*	*Ocimum sanctum*	Lamiaceae	*Pushpam*	1 part
3.	*Karanja*	*Pongamia pinnata*	Fabaceae	*Phala*	1 part
4.	*Natam*	*Valeriana walichi*	Valeriaceae	*Moola*	1 part
5.	*Surahwa*	*Cedrus deodara*	Pinacae	*Kanda sara*	1 part
6.	*Haritaki*	*Terminalia chebula*	Combrietaceae	*Phala*	1 part
7.	*Vibheetaki*	*Terminalia bellarica*	Combrietaceae	*Phala*	1 part
8.	*Amalaki*	*Embilica officinalis*	Euphorbiaceae	*Phala*	1 part
9.	*Shunti*	*Zingeber officinale*	Zingeberaceae	*Kanda*	1 part
10.	*Maricha*	*Pipper nigrum*	Piperaceae	*Phala*	1 part
11.	*Pippali*	*Piper longum*	Piperaceae	*Phala*	1 part
12.	*Haridra*	*Curcuma longum*	Zingeberacae	*Kanda*	1 part
13.	*Daruharidra*	*Berberis aristata*	Berberidaceae	*Kanda*	1 part

METHOD OF PREPARATION[13]

- All the drugs mentioned above are taken in equal quantity, mixed well and ticturated
- with basta mootra (goat's urine).
- Susushma pistam or a very fine consistency is considered as siddha lakshana or
- confirmatory sign.
- It is opined that bhavana has to be done for 6 yaama (3-4 hours) per day according
- to Astavaidya Vaidyamadom Cheriya Narayanan Namboothiri. In general practiced
- bhavana or ticturation is done for 3 to 4 hours.

LIST OF RASAPANCHAKA OF INGREDIENTS OF VILWADI GULIKA13

No.	Name of the drug	Rasa	Guna	Veerya	Vipaka	Karma(mode of action)
1	*Bilwa*	*Kasaya,Tikta*	*Laghu,ruksha*	*Ushna*	*Katu*	*Kapha-vata shamaka, mriduvirechana*
2	*Surasa*	*Katu,Tikta*	*Laghu,ruksha*	*Ushna*	*Katu*	*Kapha-vata shamaka, tvak doshahara, Rakta shodhaka, Vishagna*
3	*Karanja*	*Tikta,Katu,Kasaya*	*Laghu,tikshna*	*Ushna*	*Katu*	*Kapha-vata shamaka, kandugna, jantugna, Kushtagna*
4	*Natam*	*Tikta,Katu,Kasaya*	*Laghu,snigdha*	*Ushna*	*Katu*	*Kapha-vata shamaka, kushtagna, jwaraghna*
5	*Surahwam*	*Tikta*	*Laghu,snigdha*	*Ushna*	*Katu*	*Kapha-vata*

						shamaka, kushtaghna, jwaraghna
6	Haritaki	Kasaya pradhana lavana varjitha pancharasa	Laghu,ruksha	Ushna	Madhura	Tridoshahara, kushtagna, jwaragna, rasayana
7	Vibhitaki	Kasaya	Ruksha,laghu	Ushna	Madhura	Tridoshahara, kustaghna, raktastambhana
8	Amalaki	Amla pradhana lavana varjitha pancharasa	Guru,ruksha		Madhura	Tridoshahara, stambhana, daha-prashamana, rasayana
9	Shunti	Katu	Laghu,snigdha	Ushna	Madhura	Vata-kaphahara, deepana, bhedana
10	Maricha	Katu	Laghu,tikshna	Ushna	Katu	Vata-kaphahara, lekhana, deepana, pachana,krimighna
11	Pippali	Katu	Laghu,snigdha,tikshna	Anushna sheeta	Madhura	Kapha-vata shamaka, kushtaghna, jwaragna, baiya rasayana
12	Haridra	Tikta,Katu	Ruksha,laghu	Ushna	Katu	Kapha-vata shamaka, kushtagna,

Chemical constituts and Pharmacological Activities14

Drug review

1. Bilwa

- Mentioned under Sothahara gana by Acharya Charaka
- The karmas are mentioned as Sothahara, Vedanasthapana, Pachana,
- Yakriduttejaka, Deepana, Grahi, Jwaraghna and Raktasthambana.
- Previous research work proves that bilwa acts Hepatoprotective and antioxidant in nature15.

2. Surasa

- Karmas mentioned are Vedanahara, Sothahara, Deepana, Pachana,
- Krimighna, Rakta shodhaka, Jwaraghna, and Vishaghna.
- Research work has proved that tulsi has Hepatoprotective property.16

3. Karanja

- Karma has been mentioned as Sothahara, Vranaropana, Vedanasthapana,

Deepana, Pachana, Yakriduttejaka, Krimighna, Rakta prasadana.

4. Nata

- Karmas mentioned are Vranaropana, Yakriduttejaka, Vishaghna,

Vedanasthapaka, Deepana, Pachana, and Jwaraghna.

5. Devadaru

- Karmas include Sothahara, Vedhanasthapana, Krimighna, Vranashodhana,

Rakthaprasadana, Deepana, Pachana.

- Research work has proved devadaru possess Hepatoprotective action.17

6. Hareetaki

- Shothahara, Vedanasthapana, Vranashodhana, Shothahara, Deepana,
- Pachana has been mentioned as karmas.
- Hepatoprotective action of hareetaki has proved in research works.18

7. Vibheetaki

- Karmas mentioned are Sothahara, Vedanasthapaka, Deepana, Krimighna.
- Research works has proved Hepatoprotective action of vibheetaki.19

8. Amalaki

- Mentioned karmas are Yakrituttejaka, Deepana, Hridya, Jwaraghna,
- Rasayana,
- Hepatoprotective action of amlaki has been proved in research works.20

9. Shunti

- Sothahara, Vedanasthapana, Deepana, Pachana, Jwaraghna are the main karmas mentioned.
- Antioxidant and Hepatoprotective potential of shunti has been proved in research work.21

10. Maricha

- Karmas mentioned are Deepana, Pachana, Yakriduttejaka, Krimighna, Jwaraghna.
- Nephroprotective and Hepatoprotective properties of the drug have been
- proved in previous research works.22

11. Pippali

- Deepana, Yakriduttejaka, Pleehavridhikara, Krimighna, Rakta sodhaka,
- Jwaraghna are the karmas mentioned.

12. Haridra

- Kandughna, vranashodhana, vranaropana, vishaghna, pittarechaka, krimighna, shothaghna, vedanasthapana, jwaraghna are the mentioned karmas.
- Antioxidant and Hepatoprotective action has been proved by researches.23

13. Daruharidra

- Karmas includes sothahara,vedanasthapaka, vranashodhaka, vranaropana, deepana, yakriduttejaka.

From the above details majority of the drugs in bilwadi gulika possess Hepatoprotective, anti-oxidant and nephroprotective nature.

DISCUSSION

The hepatotoxicity caused by chemotherapy as a secondary complication is explained. Along with this it is understood that due to higher doses of chemotherapy drugs, the toxins gets accumulated in liver and causes various liver disorders. According to our Ayurvedic concept the drugs possess deepana, pachana acts on ama which can be considered as the above mentioned toxins. Bilwadi gutika is a formulation mentioned for toxic pathologies which possess vishahara action. Considering the individual drugs in this formulation, most of them possess anti-oxidant

and Hepatoprotective action. Thus bilwadi gutika may acts on chemotherapy induced hepatotoxicity.

CONCLUSION

Bilwadi gutika could act as a choice drug for toxic pathologies induced by the chemotherapeutic drugs as the drugs present in this formulation possess Hepatoprotective action and the formulation as a whole is a well-known anti-toxic formulation. It may act as a remedy for hepatotoxicity caused secondary to chemotherapy.

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GERIATRIC CARE AND DISEASE PREVENTION THROUGH AYURVEDA

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ABSTRACT-The prevalence of illness increases as we age; at the same time, life expectancy decreases. Ayurveda, has got the potential for prevention of diseases by health promotion and management of diseases occurring in old age. We discuss lifestyle recommendations such as smoking cessation, exercise, Yoga, Rasayana therapy and good nutrition. Jarachikitsa or Rasayana is a unique therapeutic methodology to delay ageing and to minimize the intensity of problems occurring this degenerative phase of one's life. Future aging can be reduced before the occurrence of old age. In fact the ideal time for treating the geriatric problems is youth. Adherence to discipline in youth keeps the geriatric problems away. By adopting a healthier lifestyle, the risk of noncommunicable chronic disease can be reduced. The Government of India launched a national campaign to popularize the strength of Ayurveda and Yoga in geriatric health care. It is the demand of the hour to develop an effective holistic protocol for geriatric care by combining use of agad formulations, Rasayana, Panchkarma, Dietetics, Ayurvedic medicines, lifestyle and Yoga is timely.

KEYWORDSAYURVEDA;
GERIATRIC; ,USE OF VARIOUS AGADS AND RASAYANA;,NUTRITION
YOGA, MODERNIZATION.

INTRODUCTION

Ageing is a process of physical, psychological and social change in multi-dimensional aspects. The world's elderly population is increasing. By 2050, one-fifth of the world will be older than 65 years. In India, they will be about 113 million elderly by 2016 [1,2]. Ayurveda has the\ potential for disease prevention by health promotion and noncommunicable disease prevention. The focused branch Rasayana (rejuvenation) or Jarachikitsa promote healthy longevity. Jarachikitsa and Rasayana methodologically delay vruddhavastha (ageing) and reduce geriatric degeneration. Vruddhavastha begins at 60-70 years [3,4]. Rasayana (rejuvination) refers to

nourishment or nutrition. Rasayana therapy act essentially on nutrition dynamics and rejuvenate the body on both physical and mental levels. The problems of health due to modernization can be solved by increasing resistance against diseases and psychological improvement by implementing Rasayana therapy. Aging (Jara) is one among the Swabhavika Vyadhis. Jara Chikitsa is one among the Astanga of Ayurveda which is specifically dedicated for geriatric care.

As per estimation, India currently has around 75 million persons over 65 years. By proper administration of Rasayana therapy as preventive tool one can delay Jara Janita Vyadhis to occur. This paper highlights the role of Rasayana in geriatric care.

PROBLEMS IN VRUDDHAVASTHA-

Advancement of age usually creates numerous problems in the individual. Geriatric problems may be mainly divided into four categories: physical, psychological, emotional, and social.

PHYSICAL PROBLEMS-

➢ The following are some very common physical disorders of the old age:

➢ Cardiovascular - hypertension, MI, CCF

➢ Respiratory - asthma and bronchitis

➢ Musculoskeletal - osteoporosis, spasm, drooping shoulder

➢ Gastro-intestinal - dyspepsia and flatulence

➢ Genito-urinary - nocturia, prostate enlargement

➢ Locomotor system - osteoarthritis, rheumatoid arthritis, gout

➢ Endocrinological - diabetes is one of the major endocrinological problems found in old age.

➢ Ophthalmic - senile cataract and glaucoma are very common in old people

➢ Hearing - loss of hearing and hard hearing are the major hearing problems of old age

➢ Nervous - insomnia is commonly found old age problems

3

➢ Problems of hair - hair loss and baldness

➢ Cancer - Cancer incidence and severity increases with age

➢ Menopausal - in addition to all these, ladies experience menopausal health disorders

➢ Psychological problems

➢ Dementia is often noticed in old people. There are 24.2 million people living with dementia worldwide, with 4.6 million new cases every year [5]. Sense of being neglected in the family is a common complaint of the aged. Depression is the most harmful and widely noticed psychological complaint of the senior citizens [6].

➢ Social issues in elderly

Fighting geriatric problems is not the sole responsibility of the senior citizen alone. The family and the society have their share of responsibility in the fight. Marital status, financial status, work history, education, responsibilities, living atmosphere and arrangements are the prime issues to be considered while addressing the issues of elderly. Loss of key support like death of spouse/siblings, retirement, relocation and financial deterioration. Due to changing phenomenon

in India like nuclear family system and urban migration of the people, the rural elderly people are the most sufferers due to absence of family support. In addition, physical abuse, psychological abuse, neglect, financial abuse are common on elderly patients, which further add to the agony. These changes may cause multiple problems with regard to physical, social, mental wellbeing.

SPIRITUAL ISSUES IN THE ELDERLY

Active involvement in religious activities helps the patient in active life style and socializing, which in-turn minimize the problems arising from isolation and chronic diseases.

Interaction with people will also increase the awareness and hence there will be possibility for early detection of the diseases and better treatment compliance. Religious and spiritual persons tend to recover from diseases more quickly [7]. Elderly persons attending religious activities remain motivated to stop addictions like smoking, alcohol, which help in better health and social status.

The common spiritual interventions are praying, reading religious books, visiting auspicious places, attending religious rituals and meditation.

Try to keep the mind and personality always pleasant. This will increase the socialization, reduce isolation and promote the feeling of belongingness.[4]

SPECIAL CONSIDERATIONS IN OLD AGE

Multiple illnesses (medical and psychiatric), multiple problems (social, financial, family), communication difficulty, sensory impairment, need for collateral sources of information, risk of drug side effects, atypical presentation of disease.

PREVENTIVE AND CURATIVE MEASURES FOR GERIATRICS

Acharya Charak says “He, who treats the disease before its commencement or at an early stage, experiences long-lasting happiness”. Geriatric problems are best confronted by preventive measures than curative ones. Therefore geriatrics has to be treated much before the commencement of old age. The ideal time for treating the old age problems is youth. Discipline in young age prevents geriatric problems. By adopting a healthier lifestyle, the risk of a whole range of diseases can be reduced. These factors are diet and nutrition, exercise, weight, smoking and alcohol, social activities.

DIET AND NUTRITION

With increasing age, people become more prone to malnutrition for many reasons [8] including – Arochaka (Anorexia), Smritinash (Dementia), Manoavasada (Depression), Stroke, Kampavata (Parkinson disease) and other neurological disorders, delayed gastric emptying. The diet should be regulated taking into account the habitat, season, age, and according to one’s digestive capacity [9]. Following points may be considered while planning/advising dietary and other life style regimen.

- ➢ The food should be tasty, nutritious, fresh and good in appearance.
- ➢ Too spicy, salty and pungent food should be avoided.
- ➢ It should neither be very hot nor very cold.
- ➢ Liquid intake should be more frequent and in small amount.
- ➢ Heavy food can be prescribed in a limited quantity.
- ➢ Heavy food should not be given at night. The proper time for night meals is two to three

hours before going to bed. After dinner, it is better to advice for a short walk.

➢ Heavy physical work should be avoided after meals.

➢ Mind should be peaceful while eating.

➢ Eating only whenever hungry and avoidance of over eating.

➢ Inclusion of sufficient amount of vegetables and fruits in diet.

➢ Daily intake of vegetable soup and fruit juices.

5

❖ USE OF AGADA FORMULATIONS-

➢ Acharyas have also explained use of various formulations in toxic conditions. These formulations are called as agada Visha Dravya and its Action On the basis of the actions on various components of body, the probable mode of action of a visha dravya has been described in Ayurveda.

➢ It produces distress of the body constituents, burning sensation and putrefaction. Vishada guna, does not contain any mucous nature and doesn't stop anywhere in the body, passes through all the doshas resulting in their vitiation. In this way, visha leads to vitiation of all the three doshas and becomes complicated to treat. 10 Vikasi guna breaks the bonding between various dhatus and brings about looseness in the dhatus (dhatushaithilya) and resulting in their improper function.

➢ Activity of a visha dravya depends on the dominance of its possessing guna. For instance the domination of ruksha guna will lead to the vitiation of vata, domination of sukshma guna lead to vitiation of rakta 5hole as compared to others, while domination of tikshna guna will lead to the impairment of three marmas of the body i.e.shira, hridaya and basti and may lead to murchha, sanyasa and other symptoms of marmaghata.

➢ During yuktivyapashraya chikitsa.For the management of visha, the drug or formulation used must be of opposite guna as that of visha or similar to the guna of oja. Accordingly it can be presumed that all the dravyas of jivaniya gana can be used for the treatment of visha.as Oja which gets vitiated due to vishaprayoga should be brought back to its normalcy by these drugs.

➢ Ghrita is the substance which has similar gunas as that of oja is useful in treating such conditions.

➢ Due to its yogavahi nature,as it can acquire the gunas of the substance with which it is mixed without losing its own gunas and also attributed with the vishahara property. So it can be used as the best media for treating visha conditions.Due to its madhura, snigdha, shita, mrudu, shlakshna, ojasya,jivaniya gunas which acts to pacify visha.Goghrita is considered as superior.

- Vilwadi: hepato protective, radiotoxicity protection
- Kalyanaka: radio toxicity protection
- Ajithagadam: cholera toxicity protection
- Malatyadi agada: hemotoxicity protection
- Dhvaswakarnadi, patala paribhadradi, kataka beeja: promising water pollution
- controller
- Vilwadi: vibrio 6holera- ciprofloxacin

- Dushi vishari agada- lichen planus
- Bhunimbadi agada, dushivishari agada: ecoli, staphylococcus oreus, shigella
- sonnei, salmonella enterica
- Dhatakyadi agada: : ecoli, staphylococcus oreus, strepto coccus mutans
- Sirisha punarnva, tulasi: reproductive and developmental toxicity

RASAYANA THERAPY -

The word Rasayana derived from root "Rasa" and "Aayana". Rasa has several meaning such as Rasa Dhatu, Aahara Rasa, Shadrasa etc. But in this context it can be taken as Rasa Dhatu itself and word Aayana means 'to move' so it means Rasayana is a dynamic process which nourishes the body from properly formed Dhatus and increases the vital process and prevents the degenerative process.13] As per Acharya Dalhana, Rasayana is one which leads to continous nourishment of Rasadi Dhatus there by replenishing them. Acharya Sushruta defined Rasayana as Vayasthapaka which retards aging process (increases longevity of life),As per Acharya Sharangdhar Rasayana can be defined as the one which cures diseases arising due to old age.[14]Acharya Charaka has given prime importance to Rasayana and described it in an elaborate fashion, the properties of Rasayana which Acharya Charaka has mentioned are Rasayana is one which increases longevity, which increases Smriti, Medha, and one which helps in maintaining health (Arogya), maintains youthfulness, which enhances Prabha, Varna, etc.

Classification of Rasayana [15]

Classification of Rasayana by Sharma A.K. and Singh R.H. 1992.

Rasayana is Primarly divided into two types:-

Dravyabhuta Rasayana

Adravyabhutas Rasayana (Achara Rasayana)

(I) As per method of use[7]

Kuti Praveshika (in door use)

Vatatapika (out door use)

(II) As per Scope of use

Kamya Rasayana (promotor of normal health)

Prana Kamya (promotes longevity)

Medha Kamya (improves mental faculties)

Shri Kamya (improves lustre of body)

Naimittika Rasayana

Ajasrika Rasayana

(III) According to Prabhava (Effect)

Dalhana mentions two types of Rasayana in

Sarvopaghata Shamaniya chapter of Chikitsasthana,

Samshodhana Rasayana

Samshamana Rasayana.

MODE OF ACTION

As per our classics Rasayana therapy works on Agni which inturn leads to proper formation of Rasadi Dhatus, Hence responsible for creation of Ojas which is considered as prime essence of these Rasadi Dhatus.[16] Which is responsible for proper working of immune system

of body in terms of Vyadhi Kshamatva, Hence Rasayana plays a crucial role in prevention of aging and old age related disorders. It also enhances bodily strength and mental faculties. Different classics of Ayurveda have defined Rasayana in different words but in same central theme.

THE PROBABLE MODE OF ACTION OF RASAYANA THERAPY AS

Rasayana has broad meaning indicating qualitative and quantitative improvement of dhatu (tissues). Vayasthapana are specialized rasayana drugs that reverse degenerative changes, increase life span with quality health 17. The main utility of Rasayana therapy is in functional and degenerative disorders that have a chronic or long standing nature. In such cases, in fact, rasayana is the only solution from the point of view of effective management in any system of [8] medicine. Rasayana becomes more fruitful and effective, if it is preceded with suitable Panchakarma (purificatory therapy). The reason we see mixed results in many cases where Rasayana is employed is because of the fact that, either this purification is not done or improperly done

- ➢ Brahmi Rasayana,
- ➢ Maha Triphala Ghrita,
- ➢ Triphala Churna,
- ➢ Ashwagandha Churna,
- ➢ Narasimha Rasayana
- ➢ Agastya Rasayana
- ➢ Amalaki Rasayana - Antioxidant action
- ➢ Immunomodulatory action – Guduchi.
- ➢ Haematopoietic effect – Amalaki, Bhringaraja,Mandura, Lauha Bhasma.
- ➢ Adaptogenic action- Ashwagandha.
- ➢ Antiaging action – Ashwagandha, Bala.
- ➢ Anabolic action –Vidarikanda.
- ➢ Nutritive function –Gritha, Ksheera.
- ➢ Neuroprotective action – Ashwagandha, Swarna

As mentioned earlier the qualities of Rasayana therapy are one which enhances the longevity, one which enhances Smiriti, Medha, which maintains Aarogyata, and also maintains youthfulness etc. In order to counter act the Jara Lakshana and Jarajanita Vyadhis one has to follow Rasayana therapy on daily basis which inturn leads to good qualitative life.

EXERCISE

Exercise helps to control weight, improve emotional well-being and relives stress, improve blood circulation, flexibility.

Regular yogic exercise from youth limits the effects of old age

BENEFITS OF THE GERIATRIC YOGA:

Yoga provides a good balance, blood stream and tissue liveliness thanks to the enhanced flexibility and core stabilization. If the person attends the Geriatric Yoga programme regularly, many problems, which are caused by age, can be prevented .9

It is possible to reload the most essential brain functions with the relaxing characteristic of

Yoga

The person gains experience with his own existence, body andmental performance during the sessions in Yoga practices. He learns to control his body. He analyzes his emotional status about his problem. He gains ability to cope with the symptoms faced

It reduces sympathetic activity with relaxing techniques. Pain, fatigue, depression and stress decrease with relaxing response. Memory becomes retentive .

❖ **ASANAS:** Surya Namaskar, Pavanamuktasana, Ardha Matsyendrasana, Bhujangasana and Shavasana.

❖ **PRANAYAMA:** Nadisodhana, Kapalbhati, Bhramari, Neti, Bhastrika and Tratak.

❖ MUDRAS: Khechari mudra removes diseases and old age problems. Dharana, Dhyana, Swadhyaya and Iswara Pranidhana.

❖ **CUTTING DOWN SMOKING AND ALCOHOL**

Drinking is linked to liver diseases, stomach ulcers, gout, depression, osteoporosis, heart disease, and hypertension. Sensitivity to the effect of alcohol increases with the age .

❖ **SOCIAL ACTIVITIES**

Mixing with other people of similar age, at similar stage of life or perhaps with similar health concerns, can help people realize that they are not alone. The elderly need not always be seen as care receivers. They can be resource too - Transmitters of culture, care of grandchildren (storytelling, playing), counselors to the young couple, they had vast and varied experiences, helps in problem solving and trouble shooting.

❖ **DISCUSSION-**

In today's developing countries chronic non - communicable diseases such as heart disease, cancer and diabetes reflects changes in lifestyle and diet, as well as aging. Ayurveda the science of life deals mainly with all the aspects of life in relation of health and prevention of disease. So for promotion of life and prevention of disease there are certain codes, conducts and therapies have been mentioned and Rasayana therapy is one among them. Rasayana therapy not only works on physical aspect but also on mental aspect. Geriatrics is a branch of modern medical science which aims at promotion of health by preventing, treating diseases and 10 disabilities in older adults. So to fulfil the aims of geriatrics Rasayana therapy is considered to be the main line of treatment as it prevents most of the geriatric diseases. Ayurveda gives importance for geriatric care, as it is one among the branch of Astanga of Ayurveda. Jara Chikitsa has a good scope in present day scenario as a preventive tool. As mentioned earlier the qualities of Rasayana therapy are one which enhances the longevity, one which enhances Smiriti, Medha, which maintains Aarogyata, and also maintains youthfulness etc. In order to counter act the Jara Lakshana and Jarajanita Vyadhis one has to follow Rasayana therapy use of various agadas mentioned in Ayurveda on daily basis which inturn leads to good qualitative life.

❖ **CONCLUSION**

To live a long and healthy life is every individual's wish. Due to changing lifestyle and thus not able to follow the rules of dietetics human beings have led to an emergence of varied problems for the elderly in India. It is obvious that the process of ageing was elaborately described in ayurvedic texts and a separate medical discipline called Rasayana tantra was developed which

described a variety of methods and measures to promote healthy longevity. Undoubtedly, it is the strength of ayurveda in the context of geriatric care Rasayana is a therapy which bestows excellent rasa which ultimately results in promotion of longevity, alleviation of old age and diseases so as to enjoy the full span of life. Government of India has also launched a national campaign to popularize the strength of Ayurveda and Yoga in geriatric health care.

It is the demand of the hour to develop an effective holistic protocol for geriatric care by combining use of various agad formulations Rasayana, Panchkarma, Dietetics, Ayurvedic medicines and lifestyle and Yoga.

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DUSHIVISHARI AGADA IN PREVENTION, CARE AND CURE IN PREMATURE AGING

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ABSTRACT

INTRODUCTION

Food is the only source of maturation, stability, solidity and healthful gleam of human beings. Every living organism needs food to live. Now a days people are following the western lifestyle and food habits and consumes fast foods, junk foods, cold drinks. The food has limited shelf life, in order to increase the shelf life and maintain the quality certain artificial preservatives are used as well as to increase the profit, food items are also adulterated. These are having many chemicals in it which consecutively enters into food chain and gradually accumulate into human body. This shows various cumulative toxic effects to the human beings and may have some harmful effects. This concept has been explained in Ayurveda as dushivisha. Other than this, various factors like regular exposure of pollutants like dust, gases, metals, chemicals, cosmetics also plays a major role in creation of dushivisha. Food items which are processed or preserved through nuclear radiation, vacuum packing and hypobaric packing may also acts as dushivisha and may play role in ageing process. Dushivishari agada is one of the frequently prescribed Herbo mineral compound which act as anti-oxidant, anti-fungal, anti-microbial and extremely useful in removal of toxins and free radicles from the body. This formulation is also endowed with immunomodulatory effects thereby protecting the body from the seasonal diseases and strengthening the immune system.

METHODS

The data related to dushivisha and its chikitsa, aging and other related topics have been collected from Ayurveda text books nighantus and samhitas.

DISCUSSION

Based on the properties of dushivishari agada we can understand it is the effective in prevention care and cure of geriatrics.

RESULTS

Dushivishari agada is useful to treat skin diseases, capable of dealing with the cases of dushivisha and also have anti-aging properties, anti-oxidant, immunomodulatory effects and can be useful in prevention care and cure in geriatrics.

KEYWORDS:
Dushivisha, Food, Geriatrics, Dushivishari agada,

INTRODUCTION

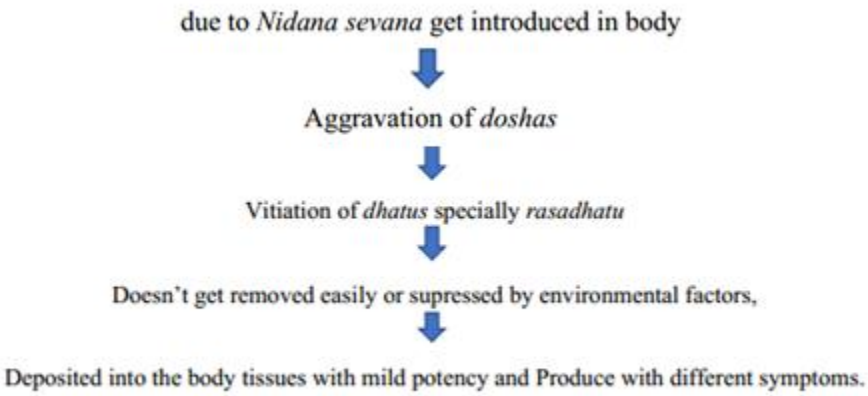
Dushivisha is any poison it may sthavara jangama or krithrima, which has become old, which inadequately neutralized by the antidote and dried by breeze, forest fire, sunlight or that which by its nature itself is not endowed well, with all the properties of visha[1] and it does not produce any immediate symptoms but accumulates in the body for several years and destroy the body[2].

For healthy life everyone needs balanced diet. Practice of aharavidi is an ancient and empirical art and it is only in early years of last century. The development sustenance of, reproduction and termination of life depends upon bioenergy supplied by food in the form of essential constituents. But life style and habits have changed with time.

Now a days people are following the western lifestyle and food habits and consumes fast foods, baked foods, junk foods, cold drinks and incompatible diet. The food has limited shelf life, in order to increase the shelf life and maintain the quality certain artificial preservatives are used as well as to increase the profit, food items are also adulterated. Food items which are processed or preserved through nuclearradiation, vacuum packing and hypobaric packing may also having many chemicals which exhibits toxins and consecutively enters into food chain and gradually accumulate into human body and produce cumulative toxicity. It can be correlates with dushivisha. As dushivisha are the toxins which are deposited in body tissue that leads to serious health problems. These toxins cannot be removed from the body but instead become less potent after digestion and stays in the body for longer period and shows effects in old age.

AETIOPATHOGENESIS OF DUSHIVISHA

As dushivisha less potent in nature that is stated elsewhere the poison which undergoes accumulation at amashaya, the toxins get avarana by kapha and vitiates doshas and dhatus in due course of time because of the factors such as desha, kaala, food, sleep in day time [3], pollution and cosmetics. These vitiated dhatus shows symptoms of dushivisha.



As above said food and other substance which causes vitiation of doshas and dathus produces amavisha that leads to symptoms of poison. Dushivisha is intrinsic cause of altered immune response (Ojodusti). In due course of time Dushivisha can leads to general symptoms of JARA like greying of hair, dry or itchy skin, wrinkles or sagging, hair loss and generate harmful effects. This whole process of Dushivisha can be understood with the concept of bioaccumulation. Bioaccumulation refers to the aggregation of substances, such as pesticides, other inorganic or organic chemicals in creature. Most of the bio accumulative chemicals are fat-soluble so that they have a tendency to lodge primarily in fat deposits or in the fatty substances in blood [4]. Consuming components on the contrary is harmful to health and enhances the premature aging. The effect of pollution and cumulative poisoning on the body is also one of the important reasons for bringing aging quickly. Consumption of viruddaahara is harmful to health and enhances the premature aging. The effect of cumulative poisoning on the body is also one of the important reasons for bringing aging quickly.

DUSHIVISHARI AGADA FORMULATION

Dushivishari agada is one of the frequently prescribed Herbo mineral formulation explained by acharya vagbhata in astanga hrudaya uttarastana 35th chapter [5] and Susrutha in susrutha samhita kalpasthana 2nd chapter [6]. It is the formula to be described for the treatment of dushivisha

The properties of dushivishari agada

DRUG	LATIN NAME	RASA	GUNA	VEERYA	VIPAKA	KARMA
Pippali	Pipper lomgum linn.	Katu	Laghu Tikshna Snignda	Anushna sheeta	madhura	Kusthagna Krimigna Raktashodhak[7]
dhyamaka	Cymbopogon cmartinii (Roxb.) Wats	Katu	Laghu ruksha	Ushna	Katu	Raktashodhaka[8]
jatamansi	Nardostachys Jatamansi DC	Tikta Kashaya	Laghu Snigdha	Sheeta	Katu	Kushthaghna[9]

		Madhura				
Lodra	*Symplocos racemose*	*Kashaya*	*Laghu Ruksha Grahi*	*Sheeta*	*Katu*	*Raktashodhaka Kustaghna*[10]
Ela	*Elettaria cardamomum* maton	*Katu Madhura*	*Laghu Ruksha*	*Sheeta*	*Madhura*	*Aruchi Shwasahara Tridoshahara*
Kutanatum	*Oroxylum indicum*	*Tikta Kashaya*	*Laghu Ruksha*	*Sheeta*	*Katu*	*Kaph pitta shamaka*
Mustaka	*Cyperus rotundus*	*Tikta Kashaya katu*	*Laghu Ruksha*	*Sheeta*	*Katu*	*Rakta prasadaka, Twakdoshahara, Vishaghna*[11]
Suvarchika	*Potassium nitrate*	*Katu*	*Tikshna Ruksha Laghu*	*Sheeta*	*Katu*	*Vishagna*[12]
Kusta	*Saussurea lappa C. B Clarke*	*Tikta*	*Laghu Ruksha Tikshan*	*Ushna*	*Katu*	*Vishagna Kandughna Twak rogahar*[13]
Yastimadhu	*Glycyrrhiza glabra Linn.*	*Madhuara*	*Guru Snigdha*	*Sheeta*	*Madhura*	*Raktajavikara Twakroga Kundughna*[14]
Chandana	*Santolum album Linn.*	*Tikta Madhura*	*Laghu Ruksha*	*Sheeta*	*Katu*	*Kustaghna Raktashodak*[15]
Gairika	*Ferrous oxide*	*Madhura Kashaya*	*Snigda Vishada*	*Sheeta*	*Katu*	*Vishagna*[16]
Natah, tagara	*Valeriana wallichi*	*Tikta, Katu*	*Laghu Snigda*	*Ushna*	*Katu*	*Vishaghna, Kushthaghna*[17]

The actions of dushivishari agada is deepana pachana, grahi, shukra shodaka, kandughna, shophagna, kustagna, varnya kanthya, swasahara, manodosha hara and rasayana. Here in this formula most of the components having katu viapaka with laghu ruksha guna, which have kaphagna properties.

DISSCUSION

Agadatantra (Ayurvedic toxicology) is one of the Astanga Ayurveda which deals with spotting of poison, types of poison from plant, animal kingdoms and minerals as well as artificial poisons and their treatment.18 Dushivisha is less virulent, it does not produce any immediate symptoms but get enveloped by kapha and lies dormant in the body for longer period. Though mild in potency we should not neglect because on exposure to particular things it gets aggravated if it is present in particular dhatus it produces dhatu pradoshaja vikaras results in hypersensitivity reactions in the body and alter the immune response (Ojodusti).

During the aging process, physiological actions become less and there is a gradual decay of molecules and tissues in the body at the biological level and that causes a gradual decrease in physical and mental capacity, and risk of disease like COPD, musculoskeletal diseases etc also suffers from age spots, gaunthands, inflammation or hyper pigmentation, dry or itchy skin, wrinkles or sagging, hair loss etc. Due to continuous exposure to cumulative toxicity some symptoms of the process of aging starts rapidly, such problems arising as a result of pollution or cumulative toxicity.

In Ashtanga hrudaya Uttarsthan if patient suffering from dushivisha (bioaccumulation or cumulative toxicity) is given swedan, vaman, virechan as a shodhan chikitsa and dushivishari agada is given with madhu as a shaman chikitsa.19. Dushivishari agada can be given in the form of churna, kashya and vati

As it contains pippali, kutanata, kusta, suvarchika act as deepana pachana maintains agni in cellular level. Mamsi, gairika, Chandana nata lodra and dhyamaka acts as balya, vishaghna, raktashodaka and raktaprasadaka, exhibits their antitoxic actions and cure the various skin diseases. Pippali yastimadhu kusta whicha are having rasayana properties corrects the ojadusti, nourishes rasadi dhatus and strengthening the immune system. Madhu as anupana plays important role in breakdown of the aetiopathogenesis and removes the toxins from the strotas(small channels)

The concept of dushivisha explained in Agadatantra and it had wide application. In the present era has changed along with time. The possibility of exposure to the toxins become more because of using chemical agents, food preservatives, adulterated foods, environmental toxins caused by human activity such as urbanization and industrialization and many more things in our changing lifestyle leaves their impact on our body it is nothing but causes dushivisha. It causes serious health hazard such as allergy, asthma, skin disorders, auto immune disorders, neurological problems and pre maturing aging. Use of Panchakarma which eliminates the toxic substances and aggravated doshas from the body is very effective to maintain the health as well as in prevention of the diseases. Panchakarma Chikitsa acts as a preventive, promotive and curative factor in the body. Dushivishari agada is one of the Herbo mineral compound mainly act as vishagna is frequently prescribed in dushivisha which act as anti-oxidant, anti-fungal, anti-microbial and extremely useful in removal of toxins and free radicles from the body. This formulation is also endowed with immunomodulatory effects thereby protecting the body from the seasonal diseases and strengthening the immune system.

CONCLUSION

So by the above discussion we can substantiate the use of dushivishari agada after bio purification of body as a preventive aspect, then it can be more effectively preventing all types of diseases as well as in delaying the aging.

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Environmental Toxins and its Impact on the Health of Older Adults

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Environmental Toxins

Many of the products and processes contributing to environmental pollution are integral to modern life. Environmental toxins pose a threat to public health. Environmental toxins are part and parcel of our environment.

A particular toxic substance can exist in multiple forms (liquid, solid, vapor) and enter the body through multiple routes (ingestion, inhalation, skin contact). They are in the food we eat, the water we drink, the air we breathe, and many household items we use every day. Largely invisible, most go undetected and are harmless if exposure is limited.

The effects of exposure to environmental toxins are countless. Major threats include carcinogens, as well as substances affecting cardiovascular, endocrine, and respiratory functions.

The need to limit human exposure to toxins grows as scientists and health workers increase their understanding of the threat.

The Global Alliance on Health and Pollution estimates that toxic pollutants are responsible for 15 percent of all premature deaths worldwide.

However, growth in industrial manufacturing, fossil fuel consumption, and chemical-intensive crop production has dramatically changed the scale and complexity of humans' exposure to environmental toxins, which can carry health risks ranging from mild skin irritation to deadly illness.

Environmental toxins are substances and organisms that negatively affect health. They include poisonous chemicals and chemical compounds, physical materials that disrupt biological processes.

The term "environmental toxin" evokes only man-made pollution, but naturally occurring substances can be just as harmful. Cyanobacteria (blue-green algae) are toxic to humans, as are some animal venoms, mushrooms, and molds.

Arsenic, a naturally occurring element that is widely distributed in the Earth's crust, has many practical applications; it can be found in wood preservatives, pesticides, feed additives, and materials used to make car batteries and semiconductors.

Arsenic is also highly toxic. In large enough amounts, it can damage vital organs and cause death.

The correlation between the increasing threat of toxins and industrialization is undeniable. Undesired effects associated with any given toxin are largely dependent on amount and exposure of toxin. Industrial processes have fundamentally changed both.

Dangerous amounts of arsenic were once limited to natural concentrations in rocks and soil, but now we face additional risk of exposure from synthetic arsenic and arsenic waste from coal-burning power plants and mining and smelting operations.

Plastics and other synthetic materials have introduced a multitude of chemicals into the environment, and their effects on humans are incredibly complex and largely unknown.

While our understanding of the toxic effects of modern chemicals is incomplete, some of the dangers associated with industrialization are well established.

The World Health Organization estimates that outdoor air pollution accounts for more than 4 million deaths annually due to stroke, heart disease, lung cancer, and chronic respiratory diseases.

Types of Toxins

The complexity of environmental toxins makes them difficult to categorize. Some of the substances can be classified in multiple categories.

Toxins in Water and Food

• **Arsenic.** Arsenic can enter the body through the skin or be breathed in as dust, but most arsenic gets into the body through ingestion of food or water.

• **Atrazine.** An herbicide used widely to kill weeds in both agricultural and residential settings, atrazine is one of the most commonly used pesticides in the world. Linked to hormone disruption and birth defects.

• **Dioxins.** Byproducts of both natural processes (forest fires, volcanoes) and industrial incineration, dioxins are stored in animal fats and tissues and are linked to cancer and many other diseases.

• **Lead.** Lead contamination in drinking water usually comes from leaching in distribution or plumbing lines exposure leads to neurotoxicity.

• **Mercury.** Mercury is released into the air as industrial pollution falls into lakes, rivers, and oceans, where it is absorbed by fish and its consumption, particularly by pregnant women, breastfeeding mothers, and children leads to health issues.

• **Perfluoroalkyl and polyfluoroalkyl substances (PFAs).** Highly prevalent industrial chemicals, PFAs are used in products ranging from clothing to nonstick cooking surfaces due to their ability to resist heat and stains. Studies suggest PFAs may adversely affect human growth and reproduction, as well as liver, thyroid, and immune system function.

Household Toxins

• **Asbestos.** Linked to lung disease, asbestos mineral fibers are used in insulation and a variety of other building materials.

• **BPA.** Bisphenol A, a chemical used in the production of plastics, can leach into food from the coatings of food cans, plastic tableware, food storage containers, water bottles, and baby bottles. Some studies have suggested that BPA may affect hormone function.

• **Phthalates.** Phthalates are found in a wide range of household products, from shampoos and soaps to water bottles and cosmetics, and can be inhaled as vapor or absorbed through skin contact. Some phthalates act as endocrine disruptors

• **Radon.** A naturally occurring radioactive gas, radon is the leading cause of lung cancer among nonsmokers.

• **VOCs.** Formaldehyde and other volatile organic compounds (VOCs) are emitted as gases from many household products, including paints and solvents, aerosol sprays, cleansers and disinfectants, pesticides, and building materials. VOCs can irritate eyes and the respiratory

system, cause headaches and nausea, and damage the liver, kidneys, and central nervous system. Additionally, some VOCs are linked to cancer.

Air Toxins

• **Cigarette smoke.** Responsible for 90 percent of lung cancer deaths and 80 percent of deaths from chronic obstructive pulmonary disease (COPD), cigarette smoking is the leading preventable cause of death.

• **Ground-level** ozone. Although ozone in the upper layers of the atmosphere protects us from the sun's ultraviolet rays, ozone at ground level is a primary component of smog. Exposure to high concentrations of ozone can reduce lung function.

• **Noxious gases.** Resulting from pollution, excess amounts of nitrogen oxides, carbon monoxide, and sulfur dioxide contribute to ozone formation and acid rain.

•**Particulate matter.** Solids such as black carbon and mineral dust mix with liquid droplets and are suspended in the air as particulate matter. Particulate matter can enter the air from many sources but is primarily emitted from power plants, manufacturing facilities, and motor vehicles. Particle pollution has been linked to heart conditions, aggravated asthma, decreased lung function, and premature death in people with heart or lung disease.

Impact of Toxins on the Health of Older Adults

To study both the possible exacerbation of aging processes by environmental agents and the potential of increased toxicity for elderly people, mechanisms of aging must be considered with respect to their similarity to mechanisms of toxicity of known toxic agents.

Some people view aging as a toxic process, and indeed some age-related functional changes mimic toxic processes. Aging is clearly associated with alterations in homeostasis and in organ and cellular integrity; many changes of aging resemble those induced by toxicants.

Toxicologic research has found that even the most unlikely substances can be implicated in tissue damage if their concentrations deviate enough from normal.

Nutrition underscores the usefulness of considering aging as a toxic end point. For example, both deficiency and excess of vitamin B6 can lead to neurologic damage (and these changes superficially resemble those accompanying aging).

Another reason that aging can be usefully explored as a toxic process in its own right is that aging itself is probably the primary cause of or a cofactor in all age-associated disease.

Thus, all toxic processes induced by external agents can interact with aging processes, and the possible impact of this interaction would be greater with chronic exposures or toxic effects whose latency includes a substantial portion of the life span.

If aging is a toxic process, can it be mimicked by chemical or physical agents? The simple answer is that many agents present in the environment can, at high doses, induce some pathologic changes and physiologic deteriorations similar to those observed in the aged. This is a limited form of mimicry, because a given agent generally produces only a few aspects of aging in only one tissue (or at most several). Only a few agents, such as ionizing radiation, cause damage throughout the body.

The absence of universal mimicry of aging by toxic agents, even in a given tissue, is an important observation that must not be overinterpreted.

Diverse agents that are believed to produce the same kinds of damage at the cellular or molecular level sometimes induce different kinds of damage at the tissue level.

All tissues deteriorate during aging. The observation of the breadth of the effects of aging requires a similarly broad toxicologic approach. Neurotoxicology and immunotoxicology should also be emphasized.

From the toxicologic perspective, two general problems present the greatest concern in the consideration of environmental relationships with aging. First, the mechanisms of aging are unknown, so toxicologic methods of detecting perturbations in the essential biology of the aging processes are not readily feasible. Second, the empirical approach is thwarted because there are no comparative data to validate any test proposed to detect agents that specifically affect aging or the aged.

CHEMICAL FATE AND EFFECT

Chemicals enter the body by inhalation, ingestion, and contact with the skin. They can act at the local site of contact, or they can be absorbed, enter the bloodstream, and be transported to act at other sites.

Toxic agents are eliminated from the blood by biological transformation and by excretion or accumulation at various sites. The liver is active in biotransforming toxic substances; however, enzymes in the kidneys, lungs, gastrointestinal tract, skin, and other tissues can also metabolize toxicants.

Some toxicants accumulate in organs or tissues, where they might or might not produce toxic effects. Most toxicants are eliminated in the urine via the kidney or in the bile via the liver, although some volatile toxicants can be eliminated in the exhaled air via the lungs.

Many toxic chemicals are converted to less toxic, or in some cases more toxic, chemicals by the same pathways that are responsible for the biotransformation of drugs.

Absorption

Absorption is the major process by which toxicants are transported across body membranes. The main sites of absorption of toxic agents are the skin, lungs, and gastrointestinal tract. Many toxicants can be absorbed through the skin and enter the bloodstream.

Toxicants that are absorbed by the lung are in the form of gases or solid or liquid aerosols.

A variety of environmental toxicants enter the food chain and are absorbed from the gastrointestinal tract. Many factors alter the gastrointestinal absorption of toxicants, including gastrointestinal motility, the physical and chemical properties of the toxicant, and gastrointestinal content.

A number of physiologic alterations associated with old age might be expected to affect absorption from the gastrointestinal tract.

Older people have reduced gastrointestinal motility and slower emptying, which might be expected to decrease the rate of absorption.

Distribution

Once a toxicant enters the bloodstream, it is available for distribution throughout the body. Only free toxicants—those not bound to plasma proteins— are able to enter other sites.

The distribution of toxicants depends on their ability to cross cell membranes and on their affinity for various body components.

Toxicants vary widely in these two characteristics. Some do not readily cross cell membranes and therefore have restricted distribution. Others bind to various sites in the body, such as fat, liver, kidneys, or bone.

A variety of age-related changes can alter the volume of distribution of substances throughout the body. Body composition is one of the most important.

In addition, a decrease in serum albumin in the aged means that greater amounts of substances that bind to serum albumin, such as the anticonvulsant phenytoin, will be free to diffuse into body tissue.

Metabolism and Elimination

Some chemical agents that enter the body can remain as intact molecules, but many are biologically transformed by metabolic processes. The metabolic processes can facilitate elimination from the body.

The major routes for elimination of chemical agents from the body are from the kidneys to urine, from the liver to bile to feces, and from the lungs to exhaled air. Minor routes include secretions from the body—such as sweat, tears, saliva, mucus, digestive juices, and milk—and hair, nails, and desquamated epithelial tissue. As mentioned above, such factors as age and disease state that interfere with kidney function or biliary excretion in the liver can affect the toxic potential of chemicals in the body.

The liver is especially important as a route of elimination of chemicals that are ingested, because most of the blood from the gastrointestinal tract goes through the liver on its way to the general circulation.

Processes of metabolism and elimination can be altered in the elderly, but the evidence of altered hepatic drug metabolism in humans is indirect.

Autopsy studies have demonstrated that liver mass in proportion to body weight declines after middle age and that liver blood flow decreases with increasing age.

For some drugs, mainly those that undergo conjugation in the liver, there is no clear effect of age on metabolism. However, age appears to have a variable influence on the rates of metabolism of drugs that are oxidized in the liver; most of the wide interindividual variation in drug metabolism is more likely due to a variety of genetic and environmental factors.

MECHANISMS OF TOXICITY AT THE MOLECULAR, CELLULAR, AND TISSUE LEVEL

The mechanisms by which toxic agents exert their actions are extremely diverse.

Such a characterization is probably most relevant for the consideration of aging, in that the age-associated functional decline in physiologic systems and the lack of specificity as to cells and tissues have been characterized for elderly people, even though the exact mechanism of aging is still unknown.

Molecular Action

The molecular action of toxic agents can result from the creation of damaging chemical species that attack specific moieties of biologic molecules. The search for toxic mechanisms that are shared by aging and by specific toxic agents should include agents whose action is very broad, because aging broadly affects all tissues.

Alterations in molecules that control regulatory processes can have multiple manifestations or can affect multiple tissues (e.g., in diabetes), no example of induced response equal in breadth to the manifestations of aging has been observed.

Cellular Effects

Aging must be considered a phenomenon in which most cells in most tissues can be discerned to be altered, so it seems logical to consider aging as similar to the first cellular effect mentioned, that is, as acting through deterioration in most cells of a given tissue.

The results of some aging studies have indicated that the cell is the essential unit of aging, with manifestations at the tissue, organ, and organism levels being sequelae of cellular deterioration. Although aging research has been directed toward determining the molecular damage or change that underlies cellular aging, it has been unsuccessful in establishing a molecular etiology. Thus, in a search for toxic agents that mimic aging, comparisons at the level of the cell and tissue are appropriate.

Effects at the Tissue Level

Specificity might be due to toxic stress at the site of exposure (e.g., lung, skin, or gastrointestinal tract), at the site of metabolic action (e.g., liver, brain, or kidney), or in susceptible target cells. It is important, however, in understanding the toxic mechanism acting at the tissue level to determine its etiology at the cellular and molecular levels.

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ROLE OF DUSHIVISHA IN CANCER AS LIFESTYLE RELATED DISORDER W.S.R TO GERIATRIC CARE

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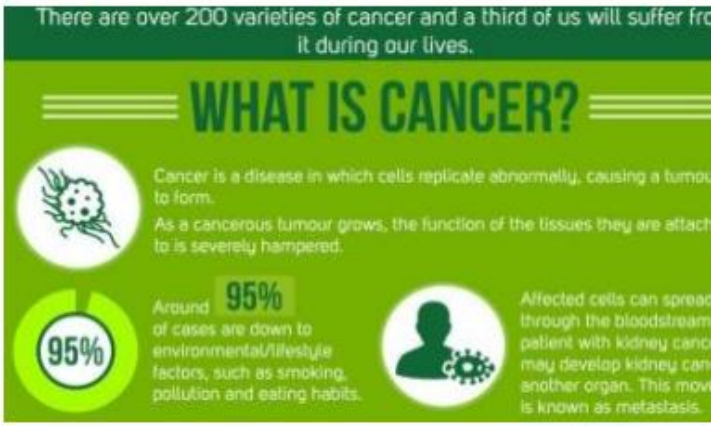
PROLOGUE

Ayurved, the science of healthful living, is the most rational and scientific among the ancient systems of medicine. It has immense potential to tackle many medical problems. Agad tantra is the branch of Astanga Ayurved, which describes the different causes of life style disorders due to urbanization & Industrialization. Life style disorders are of long duration and generally slow progression such as Cancer.

According to Ayurved any diseases is because of Pragyaparadha, which is one of the three basic causes of any disease. There are continue improper actions as an impact of Pragyaparadha which are root causes of various diseases, e.g., habit of suppression of any natural urge is a result of Pragyaparadha and enlisted as a cause of nearly 50% of the diseases. One among them is the fast spreading Cancer!!!!!!

CANCER OVERVIEW (Cancer is more than just one disease)

Cancer refers to any one of a large number of diseases characterized by the advancement of anomalous cells that divide hysterically and have the ability to infiltrate and annihilate normal body tissue. Cancer often has the ability to multiply throughout your body. Cancer is the second-leading reason of death in the world. We are made up of trillions of cells that over our lifetime normally grow and divide as needed. When cells are uncharacteristic or get old, they usually die. Cancer starts when something goes wrong in this course and your cells keep making new cells and the old or abnormal ones don't die when they should. As the cancer cells grow out of control, they can multitude out normal cells. This makes it hard for our body to work the way it should be. There are many types of cancer. Cancer canenlarge anywhere in the body and is named for the part of the body where it started. For example, breast cancer that starts in the breast are still called breast cancer even if it spreads (metastasizes) to other parts of the body.

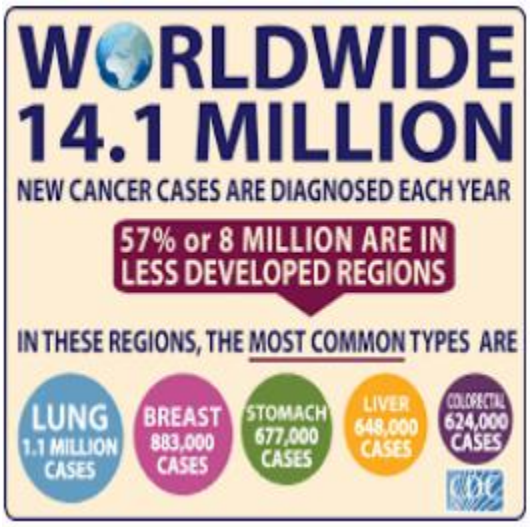


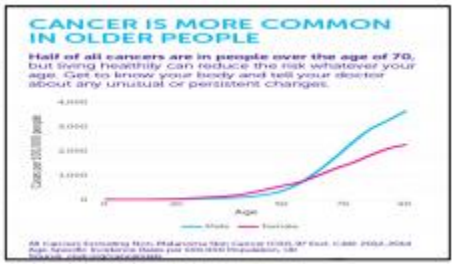
There are two main categories of cancer:

- Hematologic (blood) cancers are cancers which are of the blood cells, including leukemia, lymphoma, and multiple myeloma.
- Solid tumor cancers are cancers of any of the other body organs or tissues. The most general solid tumors are breast, prostate, lung, and colorectal cancers.

AGEING-GLOBAL ACCEPTANCE- DEMOGRAPHY

Life expectancy has increased the number of elderly patients. Globally, the number of older adults is increasing at a rapid pace (estimated 524 million in 2010 to nearly 1.5 billion in 2050), taking place in developing regions. More than 60% pts who are newly diagnosed with cancer are age ≥ 65 years or older, which makes this the most common population seen in an oncology practice. Chemotherapy is an important component of treatment for many cancers. The side effects of chemotherapy affect an individual's physical health, quality of life and emotional state.





CANCER AND AGING WHY IT'S COMMON

- Increasing age is one of the strongest risk factors for cancer development
- The link between them is complex and the fundamental factors are unanswered.
- Cancer and aging seem to share common etiologies such as genomic instability / DNA Damage is stimulus for cancer and aging. 3
- Reduced fitness of intracellular mechanisms that protect from cancer
- A pro-tumorigenic tissue environment and Immunosuppression

CUMULATIVE POISON OR DUSHI VISHA

Toxins producing chronic effects are generally out shadowed under the acute. The term dushi visha covers all the toxins which when low in its potency remains dormant within the body for

years together. But when its accumulation reaches up to a certain toxic level, it produces deleterious effect on the body.

Dooshivisha which is a transformable state of Visha (Toxins) which can be attained by any type of poison, if it is not eliminated from the body completely. Ancient seers describe that it is part of poison originating from inanimate or animate or artificial source which retained in the body after partial expulsion or which are provisionally undergone detoxification, by the antipoisonous drug but not completely eliminated from body.

Due to low potency and also due to enveloping (awarana) action by kapha, it does not cause sudden death. It is retained in the body for a long period without producing any grave or fatal symptoms. It slowly vitiates the dosha & then vitiates rasa-raktadi dhatu (tissue). Same pathology is seen in cancer. After long term exposure to carcinogenic substances, Rasaraktadi Dhatu (tissue) get vitiated which causes the mutation of cells

SIMILARITY BETWEEN AGING AND CUMULATIVE TOXICITY (DOOSHI VISHA)

Acharya Sushruta pointed out that a portion of Sthavara (inanimate), Jangam (animate) or Krutrim (artificial) poison, which due to accumulated nature is not able to come out of the body completely and accumulates in the body for a long time, destroys the body slowly is called Dooshi Visha. It becomes Avritta by Kapha (lipophilic binding) and accumulates in that state for years. This whole process of Dooshi Visha can be easily understood with the concept of bioaccumulation. Bioaccumulation refers to the aggregation of substances, such as pesticides, other inorganic or organic chemicals in creature.

CONTEMPORARY RELEVANCE OF DUSHIVISHA AND ITS ADME

Table No. 1: Influencing Factor for Bioaccumulation of *Dushee Visha*.

Sr. No.	Feature	*Sushrut*[9]	*Ashtang Hradaya*[10]	*Bhav-Prakash*[11]	*Vang-sen*[12]
1	Chronic Poison (*Jirna Visha*)	✓	✓	✓	✓
2	Ineffective by antidote (*Aush-odhirbhihat*)	✓	✓	✓	✓
3	Dries by Internal Heat (*Agni*)	✓	✓	✓	✓
4	Dries by *Vata* Dosha	✓	✓	✓	✓
5	Dries by Sun Light (*Atapa*)	✓	✓	✓	✓
6	Nature of Poison (*Swabhav*)	✓	✓	✓	✓

Table No. 2: Aggregative Factor of *Dushee Visha.*

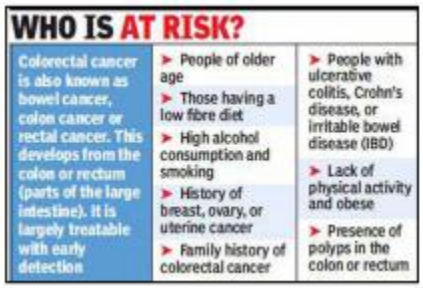
Sr. No.	Feature	*Sushrut*[13]	*Ashtang Sangrah*[14]	*Ashtang Hradaya*[15]	*Yog-Ratnakar*[16]	*Bhav-Prakash*[17]	*Vang-sen*[18]
1	Region (*Desha*)	✓	✓	✓	✓	✓	✓
2	Indigestion (*Ajeerna*)	✓	✓	✓	✓	✓	✓
3	Cold & Cloudy Weather (*Kala*)	✓	✓	✓	✓	✓	✓
4	Day Sleep (*Diva-Swapna*)	✓	✓	✓	✓	✓	✓
5	Unsuitable Food (*Ahita Prashana*)	✓	✓	✓	✓	✓	✓

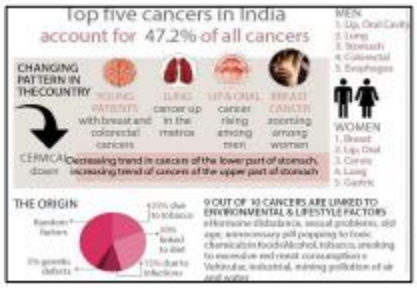
SIMILARITY BETWEEN AGING AND CUMULATIVE TOXICITY (DOOSHI VISHA)

Most of the bio accumulative chemicals are fat-soluble so that they have a tendency to lodge primarily in fat deposits or in the fatty substances in blood.

At the biological level aging is also a gradual process and condition that arises as a result of the decay of tissues and cells. Many such symptoms which are caused by aging are very similar to the symptoms arising from the effects of the cumulative poison.

SOME FACTS OF LIFE AND DEATH





Cancer facts

Only 5-10% of all cancer cases can be attributed to genetic diseases or defects, whereas the remaining 90-95% has their roots in the environment and lifestyle such as cigarette smoking, diet (fried food and red meat), alcohol, sun exposure, environmental pollutant infection, obesity and lack of physical exercises.

Cancer related death are 25-30 %, due to tobacco or 30-35% are linked to diet, 15-20% is infections caused and rest is due to inadequate life style it includes polluted diet, over use of pesticide in crop, more percentage in vegetables and fruits which affects our body metabolism and produces chronic illnesses like cancer, heart diseases etc.

Continue use of preservatives in our material also precipitate the long-term illnesses. Avoidance of direct exposure to sun light, use of whole diet, these factors causes long term defects or diseases. Some people said that genes are responsible for the chronic illness but recent study shows that genes are 20% responsible for the cancer like chronic diseases such as breast cancer. Instead of genes our life style and environmental factors amount for 90-95% of our most long-term illnesses. Cancer caused by both internal factors such as inherited and hormonal and external factors like environment or acquired factors like tobacco, diet, exposure to sunlight causes radiation effects etc.

CONTEMPORARY TERMINOLOGY SIMILAR TO DUSHIVISHA - CARCINOGENICITY

GENOTOXICITY AND MUTAGENECITY

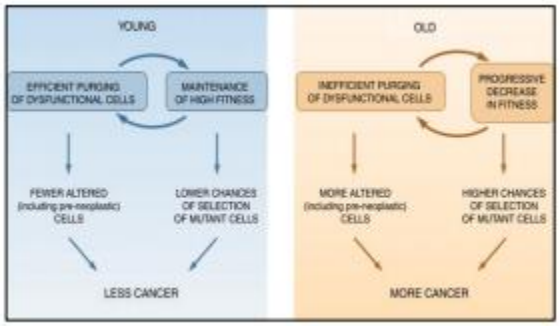
It is very difficult to define Dushivisha exactly and accurately by any single term given in Modern text. Carcinogen is any substance or agent that promotes cancer. Carcinogens are also often, but not necessarily, mutagens or teratogens. Carcinogens may cause cancer by altering cellular metabolism or damaging DNA directly in cells, which interferes with normal biological processes. Aflatoxin B ,1 which is produced by the fungus Aspergillus flavus growing on stored grains, nuts and peanut butter, is an example of a potent naturally occurring mircorbial carcinogen. Recent reports have implicated acrylamide in fried or overheated carbohydrate foods as a possible carcinogen. Co-carcinogens are chemicals which do not separately cause cancer, but do so in specific combinations.

DUSHIVISHA– A CANCER ENHANCER……

Dushivisha (mild poison) because of its poor potency does not kill the person quickly and remain in the body for many years covered by kapha. Cancer is a group of disease involving abnormal cell growth with the potential to invade or spread to other parts of the body with slow progression.

Continue use of tobacco, other factors such as obesity, poor diet, environmental pollution, lack of physical activities and over use of alcohol substances are due to poor life style causes development of cancer. Toxins producing chronic effects are generally out shadowed under the acute. The term dushi visha covers all the toxins which when low in its potency remains dormant within the body for years together. But when its accumulation reaches up to a certain toxic level, it produces deleterious effect on the body.

ROOT CAUSES & CO- FACTORS OF CANCER AND HOW DIFFERENCES IN AGE RELATED TISSUE LANDSCAPES INFLUENCE CANCER.



ROLE OF DUSHI VISHA IN ETIO-PATHOGENESIS OF CANCER

If the entire principles of Ayurved are studied, only one substance has gained the unique status of initiating a disease process independently of Dosha; generally the natural history of all diseases begins with Dosha. All Acharyas are unanimous of this view and it is of vital importance in both Nidana (diagnosis) and Chikitsa (treatment).

It is not co-incidence but significant that it is named as Dushi Visha (low grade poisons cumulative in nature). The global toxic environment, drugs and chemically and biologically manipulated food, in which industries have major contribution and can be taken as Dushi or Gara Vishas. From the Ayurved point of view, all the primary cancers of the abdomen and metastatic

cancers with primary focus elsewhere ultimately produce Udara and most of them also progresses to Jalodara (ascites) also. Further, the Viruddhahara (wrong combinations of food ingredients) and Vishamahara (incompatible) diet are well known to produce Gara like condition which appeared very relevant from the observations made in the study. The use of term Mahodara Yakritpleehei (gross organomegaly) in Garavisha is especially important in the context of malignancy.

CLINICAL FEATURES OF DUSHI VISHA

Table N. 3: General Clinical Features of *Dushee Visha* as per Various Acharya.

Sr.	Feature	*Sushrut*[21]	*Charak*[22]	*Astang-Sangrah*[23]	*Ashtang Hradaya*[24]	*Yograt-nakar*[25]	*Bhavpra kash*[26]	*Vangsen*[27]
1	Inebriant after Food (*Annamada*)	✓	-	-	-	✓	✓	✓
2	Indigestion (*Tipaka*)	✓	-	-	-	✓	✓	✓
3	Loss of Taste (*Arochak*)	✓	-	-	-	✓	✓	✓
4	Patches & Rashes on Skin (*Mandal-Kotha*)	✓	✓	✓	✓	✓	✓	✓
5	Delusion (*Moha*)	✓	-	-	-			
6	Wasting of Tissue (*Dhatukshaya*)	✓	-	-	-	✓	✓	✓
7	Edema of Feet & Hand (*Pada-Karajya Shoph*)	✓	-	-	-	✓	✓	✓
8	Ascites (*Dushyodar*)	✓	-	✓	✓			
9	Vomiting (*Chhardi*)	✓	-	✓	✓	✓	✓	✓
10	Lose Motion (*Atisar*)	✓	-	✓	✓	✓	✓	✓
11	Discoloration of Body (*Varvarya*)	✓	-	✓	✓			
12	Unconsciousness (*Murchhha*)	✓	-	✓	✓	✓	✓	✓
13	Fever (*Vishama Jwar*)	✓	-	-	-	✓	✓	✓
14	Profound Thirst (*Trushna*)	✓	-	✓		✓	✓	✓
15	Insanity (*Unmad*)	✓	-	-	-	-	✓	-
16	Flatulence (*Anaha*)	✓	-	-	-	-	✓	-
17	Aspermatogenesis(*Shukr aKshaya*)	✓	-	-	-	-	✓	-
18	Stammering Speech (*Swar Vikrit*)	✓	-	✓	✓	✓	✓	-
19	Bad Smell of Mouth (*Vaigandha Mukh*)	✓	-	-	-	✓	-	✓
20	Bad Taste of Mouth (*Vairasya Mukh*)	✓	-	-	-	✓	-	✓
21	Giddiness (*Bhrama*)	✓	-	-	-	✓	-	✓
22	Abnormal Activity (*Vichaskta*)	✓	-	-	-	✓	-	✓
23	Dyspnea (*Shwas*)	✓	-	✓	✓	✓	✓	✓

COMBATING CANCER W.S.R. TO DUSHIVISHA- HELP THROUGH AYURVED

A affected person stricken with the cumulative poisons have to be first take cautious history & then right scientific exam we manipulate it the usage of standards of Ayurved i.e. Nidana Parivarjan / Preventive measure, Bio-purification & the usage of supplementary medicinal drug in shape of Agad as point out in our classics. Bio purification remedy can correctly put off environmentally poisonous materials inclusive of polychlorinated biphenyl (PCB's) and insecticides from the body, without unfavorable aspect effects. Because management of Agadas at the side of wellknown control offers greater right end result than management of Agada alone. In all kind of most cancers visha withinside the shape of Ama is present. So 'Ama nirharana' is the preliminary or first line control of all kind of most cancers. Sodhanam, Langhanapachanam and Langhanam are the remedy for prabhutha, madhyama and alpa dosha respectively. But withinside the case of most cancers affected person could be very susceptible because of the disease. So sodhanam and langhanam have to now no longer be advisable. We can do mridulanghana and pachana, for that 'Sasundilajapeya' is given at the side of moderate pachana oushadhas like Drakshadi Kashyam. After getting some 'bala' to the affected person robust amapachana capsules like pachanamrutham Kashayam, Sapthasaram Kashayam and so on may be given

Pathyakrama said in Visha chikithsa ought to be followed. Because non-veg food, Guru Ahara, Oily meals etc. will growth the Ama and thereby assist the development of disease. There is a

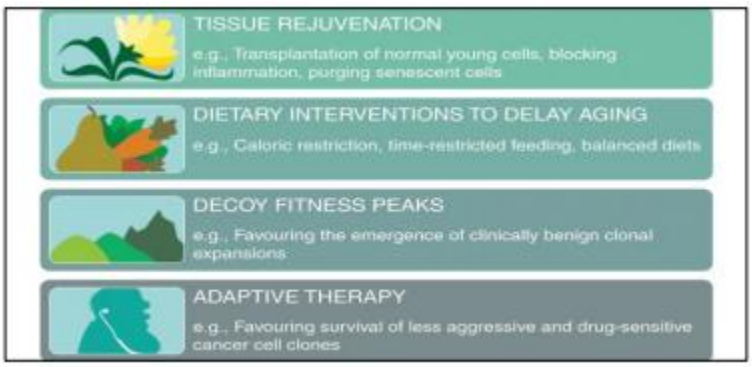
super want of Amino acids for the boom and proliferation of Tumour cells and additionally for Neovascularization (Angiogenesis). So all protein weight loss plan ought to be avoided. Peyadi handiest advisable. Specific Agada arrangements are given in conjunction with this remedy protocol.

GENERAL CONCEPT OF MANAGEMENT

AGAD PREPARATIONS- ANTITOXIC FORMULATIONS

- Vilwadi: hepato protective, radiotoxicity protection
- Kalyanaka: radio toxicity protection
- Ajithagadam: nephro toxicity protection
- Malatyadi agada: hemotoxicity protection
- Dhvaswakarnadi, patala paribhadradi, kataka beeja: promising water pollution controller
- Vilwadi: vibrio cholerae- ciprofloxacin
- Dushi vishari agada- lichen planus
- Bhunimbadi agada, dushivishari agada: ecoli, staphylococcus oreus, shigella sonnei,
- salmonella enterica
- Dhatakyadi agada: : ecoli, staphylococcus oreus, strepto coccus mutans
- Sirisha punarnva, tulasi: reproductive and developmental toxicity

A TISSUE ECOLOGY APPROACH TO OPPOSE CANCER IN OLD AGE



DISCUSSION

In ordinary lifestyles there are numerous elements inflicting most cancers environmental pollution, foods, merchandise together with shampoo, foundation, perfume, hairspray, lipstick, hair dye. These elements results in accumulation of pollutants referred to as as dushi visha (cumulative pollutants). In the case of most cancers clean instances do now no longer file to Ayurvedic physicians (exceptions are there).

Only people who strive current aids together with Surgery, Chemotherapy and Radiotherapy come for Ayurvedic treatment. Chemotherapy and Radiotherapy will produce dangerous poisonous results together with their useful results. In Chemotherapy first few doses will act as healing doses and it destroys the neoplastic cells and don't motive lot harm to healthful tissues. But in addition doses will motive critical harm to healthful tissues. Body fails to do away with the extra pills which result in accumulation of those chemical substances withinside the frame and reasons fitness issues for an extended period. These chemical substances are inexcretable and indigestible via way of means of our frame structures which result in manufacturing of Ama. The Ama produced suggests the lakshanas of visha. In radiation therapy, the ionization of the water content material of the cells will produce peroxide and different pollutants which motive poisonous results at the frame. In radiation there is 'pita' vitiation also. In Ayurved for the elimination of such pollutants numerous purification strategies are defined observed via way of means of numerous Agada kalpas (formulation) which might be beneficial to lessen or to disappear toxicity.

CONCLUSION

Today due to innovation & urbanization each & every individual is frequently exposed to many toxic substances which are mostly carcinogenic. Factors such as life style, level of physical activity, environmental pollution, personal hygiene, food are the major causing factors of cancer. In Chemotherapy first few doses will act as therapeutic doses but further doses will cause serious damage to healthy tissues. Body fails to eliminate the excess drugs which lead to accumulation of these chemicals in the body and causes health problems for a long period.

Whereas in Ayurved various purification methods are explained along with Agada kalpas which helps to reduce or vanish the toxicity. Management of cancer & its prevention can be done effectively if Ayurvedic approach of Dushivisha is applied for the cancer management. Thus Ayurved has tremendous scope in oncology.

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AGADAS IN PREVENTION CARE AND CURE IN GERIATICS

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1. Abstract

In the present scenario due to modern life style and pandemic situation "Akalaj-Jara" comes very early in most of people's life. Acharya Dalhana has explained that this type of ageing is acquired one; hence he named it "Aparirakshanakruta" which means it occurs by following improper health care measures. In classical text jara has been defined as "Kalaj-Jara"& "Akalaj-Jara". Gradually timely aging though out the life is commonly known as "KalajJara". However "Akalaja-Jara" is early aging because of improper health care measures. Jara is accompanied by doshakshaya, dhatukshaya, malakshaya, ojakshaya and manokaryakshaya viz. deterioration of sharieerika vachika and manasika function. Features of Jara are sharirshaktiheena, smiritinasha, mansik glani, balinam, palitya, dantashaithilya, swabhava vaipparya, kasa swasa pravriti, and sarvakriya asamarthata. All of these are reflected in features of aging. In modern science aging is defined as gradual decline of body's immune system. There are various theories of aging genetic molecular theory, cellular theory, and systemic level theories.

Oja is the essence of dhatus, which is responsible for growth, nourishment and promotes strength. As mentioned in the Charak-Samhita Sutrasthana Chapter 17 Kiyanta Shiraseeya adhayaya shloka 73 ojakshya features are durbalta, abhikshanam, yathitendriya, dushchaya, durmana and rukshata. However jara has the same features like ojakshaya. According to Kashinath Shastri visha is defined as the substance immediately after entering into the body caused the vitiation of healthy dhatus or killing of the healthy person. Visha has ten attributes and does sarva dosha prakopa.

The nature of visha is considered exactly opposite to that of ojas, so when visha enters in the body causes destruction of oja which ultimately leads to death. As Jara awastha resembles the features of ojakshaya hence we can say that visha may accelerate jara.

Different types of Agadas are mentioned in classical ayurvedic texts, Ajeya ghruta is one of them mentioned in ashtanga sangraha . it is in the form of grihta kalpana. As Acharya Charaka described ghrita among the dravyas of nityasevaniya dravyas and also considered ksheera ,ghrita abhyasa as best rasayana. Ajeya ghrita pacifies all the vishas quickly and act as rasayana. Ajeya ghrita is proved for his cardioprotective activity.

Aim: 1. To Study the co-relation between ageing and visha.

2. To Review the role of ajeya agada in prevention care and cure in geriatrics.

2. Introduction

Populations around the world are ageing at a faster pace than in the past and this demographic transition will have an impact on almost all aspects of society. Already, there are more than 1 billion people aged 60 years or older, with most living in low- and middle-income countries.1 Ageing is defined as a progressive generalised impairment of function resulting in the loss of adaptive responses to stress and growing risk of age associated disease.2 As mentioned in

classical text Shiryate tat shariram human body is that which is conglomeration of five elements and chetna or atma , it has to undergo wear and tear and this wear and tear in the physical body takes place constantly from birth to death3. According to Acharya Sushruta mentioned in sutrasthana Agadtantra deals with the signs and symptoms and also with the management of poisoning ,resulting from the bites of snake ,insects and worm ,spiders ,rodents etc and various other poisons produced by improper combination of substances or drugs 4.

3. Concept of Oja and Jara

Oja is the essence of the Saptadhatu and is responsible for Shareerasthairya (compactness of body elements). The Kshaya of the Saptadhatu naturally leads to Ojavikriti leading to Ojokshaya. Depletion of Oja leads to degeneration of body. Thus, the ageing (Jara) is an inevitable process, involves structural and functional changes in the body. Ojas has been considered with respect to the ageing process. This unique concept, hidden in Ayurveda shows that the methods to minimize or delay the inevitable process are already known by the ancient Acharya and was the secrets behind a healthy longevity.5

Table 1: Oja and Jara[6]

Oja Kshaya	Signs of ageing
durbalata	General debility
Abeekashanam	In taking of small quantity of food
yaathitendriya	Aliments and diminished capacity of indriyas
Duschaya	Loss of lusture
durmana	Decreased mental capacity
rookshata	Dryness of skin

Ajeya ghrita is described by Acharya Vagbhata. It is described in Ashtanga Sangraha in the context of Garavisha Chikitsa (~treatment of artificial poison) and also indicated in Sthavara visha(~plant poison), Jangama visha(~animal poison), Kritrima visha(~artificial poison) and all types of Visha(~poison) conditions.

Table 2: Ingredients of Ajeya Ghrita

Sl. No.	*Dravya* (Drug)	*Rasa* (Taste)	*Guna* (Properties)	*Veerya* (Potency)	*Vipaka* (Metabolic property)
1	*Madhuka*[7] (*Madhuca longifolia*)	*Madhura* , *Kashaya*	*Guru* , *Snigdha*	*Sheeta*	*Madhura*
2	*Tagara*[8] (*Valeriana wallichii*)	*Tikta* ,*Katu* *Kashaya*	*Laghu* *Snigdha*	*Ushna*	*Katu*
3	*Kushta*[9] (*Saussurea lappa*)	*Tikta* *Katu* *Madhura*	*Laghu* *Ruksha* *Tikshna*	*Ushna*	*Katu*
4	*Bhadradaru*[10] (*Cedrus deodara*)	*Tikta Katu* *Kashaya*	*Laghu* *Ruksha*	*Ushna*	*Katu*
5	*Harenu*[11] *(Pisum sativum)*	*Madhura, Tikta* *Kashaya*	*Ruksha*	*Sheeta*	*Madhura*
6	*Manjishta*[12] (*Rubia cordifolia*)	*Madhura* *Tikta*	*Guru* *Ruksha*	*Ushna*	*Katu*
7	*Ela*[13] (*Elattariacardamomum*)	*Katu* *Madhura*	*Laghu* *Ruksha* (dry)	*Sheeta*	*Katu*
8			*Laghu*		

	Elavaluka[14] *(Prunus cerasus)*	*Kashaya*		*Sheeta*	*Katu*
			Tikshna *Laghu*	*Anushna*	
	***Dravya* (Drug)**	***Rasa* (Taste)**	***Guna*** **(Properties)**	***Veerya*** **(Potency)**	***Vipaka*** **(Metabolic property)**
9	*Nagapushpa*[15] *(Mesua ferra)*	*Kashaya* (astringent) *Tikta* (bitter)	*Ruksha* (dry) *Tikshna* (sharp) *Laghu* (light)	*Ushna* (hot)/ *Anushna* (Not hot)	*Katu* (pungent)
10	*Utpala*[16] *(Nymphea alba)*	*Madhura* (sweet) *Tikta* (bitter) *Kashaya* (astringent)	*Laghu* (light) *Snigdha* (Unctuous) *Picchila* (sliminess)	*Sheeta* (cold)	*Madhura* (sweet)
11	*Plava*[17] *(Cyperus scariosus)*	*Tikta* (bitter) *Katu* (pungent) *Kashaya* (astringent)	*Laghu* (light) *Ruksha* (dry)	*Sheeta* (cold)	*Katu* (pungent)
12	*Vidanga*[18] *(Embelia ribes Burm.)*	*Katu* (pungent) *Kashaya* (astringent)	*Laghu* (light) *Ruksha* (dry) *Tikshna* (sharp)	*Ushna* (hot)	*Katu* (pungent)
13	*Chandana*[19] *(Santalum album Linn.)*	*Tikta* (bitter) Madhura (sweet)	*Laghu* (light) Ruksha (dry)	*Sheeta (cold)*	*Katu (pungent)*
14	Patra[20] *(Abes webbiana)*	Tikta (bitter) Madhura (sweet)	Laghu (light) Tikshna (sharp)	Ushna (hot)	Katu (pungent)
15	Priyangu[21] *(Callicarpa macrophylla Vahl)*	Tikta (bitter) Kashaya (astringent) Madhura (sweet)	Guru(heavy) Ruksha(dry)	Sheeta (cold)	Katu (pungent)

Sl. No.	*Dravya* (Drug)	*Rasa* (Taste)	*Guna* (Properties)	*Veerya* (Potency)	*Vipaka* (Metabolic property)
16	Dhyamaka[22] *(Cymbopogon martini)*	Katu (pungent) Tikta (bitter)	Laghu (light) Ruksha (dry)	Ushna (hot)	Katu (pungent)
17	Bala[23] *(Sida cardifolia Linn.)*	Madhura(sweet)	Laghu (light) Snighna (unctuous) Picchila (sliminess)	Sheeta (cold)	Madhura (sweet)
18	Shalaparni[24] *(Desmodium gangeticum)*	Madhura (sweet) Tikta (bitter)	Guru (heavy) Snigdha (Unctuous)	Ushna (hot)	Madhura (sweet)
19	Prushniparni[25] *(Uraria picta Desv.)*	Madhura (sweet) Tikta (bitter)	Guru (heavy) Snigdha (Unctuous)	Ushna (hot)	Madhura (sweet)
20	Haridra[26] *(Curcuma longa Linn.)*	Tikta (bitter) Katu (pungent)	Laghu (light) Ruksha (dry)	Ushna (hot)	Katu (pungent)
21	Daru haridra[27] *(Berberis aristata Dc.)*	Tikta (bitter) Kashaya (astringent)	Laghu (light) Ruksha (dry)	Ushna (hot)	Katu (pungent)
22	Bruhati[28] *(Solanum indicum Linn.)*	Katu (pungent) Tikta (bitter)	Laghu (light) Ruksha (dry)	Ushna (hot)	Katu (pungent)
23	Kantakari[29] *(Solanum xanthocarpum Schrad.)*	Katu (pungent) Tikta (bitter)	Laghu (light) Ruksha (dry) Tikshna (sharp)	Ushna (hot)	Katu (pungent)
24	Shwetha Sariva[30] *(Hemedismus indicus)*	Madhura (sweet) Tikta (bitter)	Guru (heavy) Snigdha (Unctuous)	Sheeta (cold)	Madhura (sweet)
25	Krishna Sariva *(Ichnocarpus frutescens*				

	R. Br.)				

Table 3: Action & Indications

Sl. No.	*Dravya* (Drug)	*Doshaghnata* (action on dosha)	*Karma* (action)	*Rogaghnata* (therapeutic indications)
1	Madhuka *(Madhuca longifolia)*	VataPittahara	Balya Shukrala	RaktaPitta Trishna Kshaya
2	Tagara *(Valeriana wallichii)*	KaphaVatahara	Vishaghna	Anidra Apasmara
3	Kushta *(Saussurea lappa)*	VataKaphahara	Lekhaniya Vrishya Vishaghna	Kushta Hikka Kasa Swasa Hridroga Kandu Visarpa
4	Bhadradaru *(Cedrus deodara)*	KaphaVatahara	Deepana	Jwara Kushta Dushta Vrana Prameha Kandu Krimi
5	Harenu *(Pisum sativum)*	KaphaPittahara	Grahi	Dahapaha Pushtiprada
6	Manjishta *(Rubia cordifolia)*	KaphaVatahara	Varnya Vishaghna	Jwara Prameha Kushta Visarpa

7	Ela *(Elattaria cardamomum)*	KaphaVatahara	Hridya	Hridroga Swasa Kasa Mutrakrichra Chardi Arshas
8	Elavaluka *(Prunus cerasus)*	KaphaVatahara	Shukra shodhana	Kandu Vrana Kushta Murcha

Sl. No.	*Dravya* (Drug)	*Doshaghnata* (action on dosha)	*Karma* (action)	*Rogaghnata* (therapeutic indications)
9	Nagapushpa *(Mesua ferra)*	KaphaPittahara	Vishahara Kushtaghna Shothahara	Visha roga Kushta Visarpa Jwara Kandu Trishna
10	Utpala *(Nymphea alba)*	Tridoshahara	Medhya Mutra virajana Grahi	RaktaPitta Trishna Daha Prameha Jwara Atisara
11	Plava *(Cyperus scariosus)*	KaphaPittahara	Deepana Pachana	Jwara Kushta Apasmara

			Grahi Lekhana	Grahani Nidranasha Rakta vikara
12	Vidanga *(Embelia ribes Burm.)*	KaphaPittahara	Vishaghna Krimighna Deepana	Kushta Udara Adhmana Krimi Shoola
13	Chandana *(Santalum album Linn.)*	KaphaPittahara	Varnya Dahaprashamana	Jwara Kushta RaktaPitta Trishna Daha Visarpa
14	Patra *(Abes webbiana)*	KaphaVatahara	Hridya Deepana	Aruchi RaktaPitta Kshaya Shwasa
15	Priyangu *(Callicarpa macrophylla Vahl)*	KaphaPittahara	Mutra virajana Purisha sangrahaniya	RaktaPitta Trishna Daha Jwara Prameha
Sl. No.	***Dravya* (Drug)**	***Doshaghnata* (action on dosha)**	***Karma* (action)**	***Rogaghnata* (therapeutic indications)**
16	Dhyamaka *(Cymbopogon martini)*	KaphaVatahara	Sthanya janana	Jwara Daha Trishna

				Chardi Kasa Swasa Krimi Arshas
17	Bala *(Sida cardifolia Linn.)*	VataPittahara	Balya Brumhana Vrushya	Vatavyadhi Prameha Kshaya RaktaPitta
18	Shalaparni *(Desmodium gangeticum)*	Tridoshahara	Balya Vrushya	Jwara Atisara Krimi Shota Chardi
19	Prushniparni *(Uraria picta Desv.)*	Tridoshahara	Vrushya Deepana Grahi	Jwara Trishna Chardi Shwas
20	Haridra *(Curcuma longa Linn.)*	KaphaVatahara	Vishaghana Lekhana Varnya	Kushta Krimi Kandu Pandu Kamala
21	Daru haridra *(Berberis aristata*	Kaphahara	Madakari Grahi	Nidra Nasha Klaibya

	Dc.)		Shukra sthambhaka	Jwara Atisara Kasa
Sl. No.	***Dravya* (Drug)**	***Doshaghnata* (action on dosha)**	***Karma* (action)**	***Rogaghnata* (therapeutic indications)**
22	Bruhati *(Solanum indicum Linn.)*	KaphaVatahara	Shukra rechaka	Hrudroga Kushta Kandu Krimi Shwasa Jwara
23	Kantakari *(Solanum xanthocarpum Schrad.)*	KaphaVatahara	Deepana Pachana Ashmarighna Mutrala Shukra rechaka	Ashmari Mutrakricchra Shota Shwas Kasa
24	Shwetha Sariva *(Hemedismus indicus R. Br.)*	Tridoshahara	Grahi	Aruchi Prameha Kandu
25	Krishna Sariva *(Ichnocarpus frutescens R. Br.)*			Jwara Atisara

4. Mode of Action

According to doshaghnata major ingredients are kapha vatahara and have tridoshaghna action. As in jara awastha there is predominance of vata dosha ajeya ghruta will be beneficial in this awastha.

The individual ingredients like salaparni, mudgaparni, utpala does rasayana karma.

5. Discussion

The pharmacological action of attributes inherited in visha does the aggravation of tridosha along with rakhta and other dhatus, attacks on the marmas of the body and enters into srotas causes srotoavrodha and damages the sarira avayavas and at the end lead to death, if it will remain in body it is so difficult to eliminate and causes chronic diseases. Likewise in old age there is vata dosha aggravation which results into vishamagni due to this produces malfunctioning of rasadi dhatus which leads to oja vikriti results into vyadhikshamatva hani and dhatu kshaya ultimately akalaj jara .To prevent akala jara and protection of jara Ajeya ghrita can be given. Ajeya ghrita is been proved for its cardio protective (Hrudayavarana)activity due to itsability to increase anti-oxidant property in the form of catalase activity and to reduce lipid peroxidation of the myocardial cell membrane. It prevents cell damage due to its anti-oxidant property responsible for a free radical generation31.

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GERONTOGENS- CONTROL AND CURE THROUGH AGAD TANTRA

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ABSTRACT:- Gerontogens are factors that accelerate aging. Talking about aging it is defined as the process of becoming older. In humans ageing represents the accumulation of changes in a human e and can encompass physical, psychological and social change. Old age shows features of frail, hunches wrinkled body with toothless dribbling mouth and uncontrollable bladder and bowel. It is surprising but true many of us aspire an early, dignified death as compared to aprolonged dependent life. Gerentogens can be toxic chemical substances found in cigarette smoke or other factors like ultraviolet radiations, Chemotherapeutic agents and arsenic etc. Agad Tantra is a branch of science dealing with poisons coming from various sources both animate and inanimate.Gerontogens are substances coming from external sources, accumulating in our body and produces toxic effect directly co-relatable to the poisonous condition of Gara visha Various Agads are mentioned in our Samhitas to have great effect on Garavisha,, other than this Agada which are found to be effective in various stages and features of aging will be mentioned in this paper.

INTRODUCTION:- Gerontogens are substances accelerating aging, especially premature aging. As we grow older our body internal processes from skin turnover to workout recovery slow down and take longer to recharge. Changes like hairloss, wrinkles, dry itchy skin etc are seen. Amoung varous causes of Premature aging, Cigarette smoke is likely to be the most important gerontogen- acc toNorman Sharpless from University of California. Other than this UV radiation from Sun, Chemotherapeutic treatment are also strong gerontogens. Is has been proven by him and his team by mouse models. Aging not only produces localized effects but being degenerative in nature it can be grouped under-

1) Intellectual Impairment
2) Functional incapacities
3) Structural deterioration
4) It reduces the overall life expectancy of an individual.

Adressing this problem and finding its control and cure is equally important. So here an attempt is made by me to find its cure and control through Agad Tantra. Acc. To Agad Tantra a condition where various substances like viruddha ausadhi, bhasma and alpavirya visaSA (Poisonous Substances of mild potency) combines and produces poisonous effect. Such condition is known as Garavisha. Various Treatments are mentioned in this context here I will try to summerize as much as possible.

AIM AND OBJECTIVE:- Literary study to know about Gerontogens and find its control andcure through Agad Tantra.

MATERIALS AND METHODS:

Gerontogens accelerates ageing in two diff ways

1) They shorten Telomeres, repetitive nucleotide sequences at the end of Chromosomes, which accelerates Cell destructions

2) They can also accelerate The rate of cellular senescence, where normal diploid cells

NORMAL MILESTONES OF AGIENG (VAGBHAT'S AND SHARANGADHAR'S VIEW)
MATERIALS AND METHODS:-

AGE (IN YEARS)	VAGBHATTA	SHARANGADHAR
(0-10)	Balyam	Balyam
(10-20)	Vriddhi	Vriddhi
(20-30)	Prabha	Chavi
(30-40)	Medha	Medha
(40-50)	Twak	Twak
(50-60)	Sukra	Dristi
(60-70)	Dristi	Shukra & Vikranta
(70-80)	Srota Indriya	Briddhi
(80-90)	Manah	Karmendriya
(90-100)	Sparsana Indriya	Jeevita

Gerontogens disturbs the normal process of ageing. The toxins and chemicals produce free radicals by normal metabolism and oxidation of organic compounds and these free radicals damage cellular macromolecules (like DNA and Proteins) and due to accumulation of these over a period of time cause ageing.

CAUSES OF PREMATURE AGIENG:-

1. Smoking:- Toxins present in cigarette smoke expose our skin to oxidative stress. This cause dryness, wrinkles and other signs of premature aging.
2. Sun exposure and tanning_ Tanning beds And exposure to sun penetrate our skin with UV rays. These rays damage the DNA in our skin with UV rays. These rays damage the DNA in our
3. skin cells causing wrinkles. Genetic Conditions:- Some people hasve rare genetic condition called Progeria wgere signs of aging is seen in Childhood and earlky puberty.

Other than this bad sleeping habits, dietery habits of eating high sugar refined carbohydrate can damage our skin overtime. Drinking alcohol excessively dehydrates skin causing it loose its shape. Environmental factors- Pollutants when come in contact with our skin causes pigment spot and wrinkles. Stress is also an important causing factor.

SYMPTOMS:-

1) Increases susceptibility to infection
2) Joint changes ranging from minor stiffness to severe arthritis.
3) Decrease in overall energy.
4) Urinary incontinence

5) Constipation
6) Decrease in overall energy
7) Decreased sperm count, infertility,
8) Dementia, Delirium
9) Diminished Visual Accuracy, Cataract
10) Some degree of hearing loss
11) Wrinkling and Sagging Skin.
12) Whitening or greying of hair
13) Hairfall
14) Weight loss, after 55 in Men and after 65 in women due to loss of myscle tissue
15) Decrease in overall energy

CARE AND CONTROL BY AGAD TANTRA

Gara Visa is a condition where Viruddha Aushadi, Alpavirya visas come together and produce toxic effect. They may be poisonous or not but their combined effect is found to be poisonous. Gara a technical term means artificial poison. Gerontogens are similar substances which produces early ageing in our body.

TREATMENT OF GARAVISA:-

1) Vaman- Karma= The Patient should be given Vamana with tamraraja along with honey for Hrdyasodhana (Cleansing of the heart)

After Hrdyasodhana he should be given one Sana(4 gm) of Hemachurna it immediately counteracts the poison. The poison doesnot affect the Patients heart.

For Complications of Gara Visha:-

1) Treatment of Tvak Vikar:- (Co-relating it with wrinkling and sagging skin)

Harenyadi Lepa:- Application of fine paster of Harenu, Chandana, syama is advised. (AS.S.UT 40/69)

2)In Ojah Kshaya:- Manjistadi Pragharshan:- Manjista, apamarga, nimba, haridra, asvatta and chandan are used.

VARIOUS AGADS MENTIONED IN DIFFERENT CLASSICS TREATING AGEING CAUSED BY GERONTOGENS.:-

AGAD	REFERENCES	INDICATIONS AS PER ANTI AGEING
1) Amrita Agada	Ca. Chi. 23 /(242-249)	Kahaya, Garavisha, Skandha Graha.
2) Kalyanaka Sarpi	Su.sam.kal 6/ (8-11)	Garavisa, Mandagagni, Alpa Sukrata, Bandatwa
3) Ksharaagada	Ca.chi.23 /(101-104)	Twak dosa, Mandagnitva
4) Gandhahastadi Agada	Ca.Chi. 23/ (70-76)	Disorders of eyes- Kaca, Patala gata rogas, Nilika, tama dosha, daurbalya, Moha
5) Balasurya Agad	As. Ut 40/59	This formulae bequartes with Wealth, immunity, success and prosperity.
6) Vamsatvagi Agada	Su.S.Kal. 5/ (78-80)	It destroyes Kaca (Cataract), Arma (Pterygium), severe diseases affecting patala and puspa by applying as anjana.
7) Sarvakamika Agada	Su.kal. 5/(78-80)	Cataract
8) Pancha Sirish Agada	Ca.Chi. 23/218	Usefull in all types of poison

Darvikara Sarpa Damsana have various features that are also signs of ageing like Dryness of skin, pain in joints of Kati, Prista and Griva durvalata, Kampana. Etc. So Agads mentioned there should also be considered like-

1) Nagadantyadi Ghrita (Cha Chi. 23/(241- 242)

2) Dusivisari Agada etc.

USE OF RASAYANA IN THE CONTEXT OF AGAD TANTRA:-

In Charak Samhita Rasayan Adhyaya Charak Has mentioned about various preperations Bhallataka like- 1) Bhallatak Sarpi, 2) Bhallatak Ksheer, 3) Bhallatak Khoudra. 4) Guda Bhallataka, 5) Bhallatak Yusa. 6) Bhallataka Taila, 7) Bhallataka Palala, 8) Bhallataka Saktu, 9) Bhallataka Lavana and 10)

Bhallataka Tarpana.

if used properly after proper sodhan Bhallatak has effects like Necter (Amrita). It should be done following all the guidelines mentioned in the texts.

CONCLUSION:- A variety of systematic and local procedures are practices for the cure and control of Geriatrics by controlling the Gerontogens. It would be appropriate to try these time tested Ancient measures mentioned in Agada Tantra so that Ayurveda can help fight the sufferings in a better way.

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PG 1ST Agad Tantra

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Herbal antitoxic drugs ameliorate cosmetic toxicity: A systemic review

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Abstract

The concept of beauty and cosmetics is as old as mankind and civilization. Cosmetic products are very popular in market like sun skin cream, skin lightning cream, facial cream, nail paint, hair dyes etc. in females. They are generally the combination of chemical compounds, some are derived from natural source and other by synthetic methods. But in present scenario beauty care products which are commonly used contains, toxic components like lead acetate, phthalates, hydroquinone etc. which results in many hazardous effects to the mankind. Cosmetic toxicity is compared with Dooshivisha and can be treated with various Varnya drugs which are exclusively mentioned in Antitoxic preparation.

Keywords: Cosmetic toxicity, Dooshivisha, Varnya drugs

Introduction

Ayurveda being the Science of life has also emphasized upon its importance by saying, good looks help in boosting the psychological state of mind and makes person feel good about oneself. It has described very systematically, the measures to attain it, maintain it and also to enhance it through proper diet and nutrition, serenity of mind, and other specific measures to take care of different aspects of beauty like Complexion, Hair care, Care of Eyes, Foot care, Well proportionate growth of body parts etc. Intake of a balanced diet in terms of nutrients as well as physical form and its proper digestion and assimilation in the body so that it can nourish all the parts of body to give rise to a healthy body and hence healthy appearance is emphasized in Ayurveda. Cosmetics are defined as "any particle intended to be applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance without affecting the body's structure or functions1. But in present scenario beauty care products which are commonly used contains, toxic components like lead acetate, phthalates, hydroquinone etc. which results in many hazardous effects to the mankind. US Researchers identified 10,500 industrial chemical used as cosmetic ingredients including carcinogens, pesticide, reproductive toxics, endocrine disruptors, plasticizers, degreasers and surfactants2.

Effects of Cosmetics in human body

Sl no	Ingredient	Beauty care products	symptom caused by short term use	symptom caused by long term use
1	**p-phenylendiamine**	hair dyes, black henna tattoos	skin irritation	dermatitis
2	**ammonium persulphate**	hair bleach	eye, skin, and nose irritation, coughing, shortness of breath	asthma dermatitis

3	**acetone**	nail polish remover, hair spray	eye, skin, and nose irritation, dizziness	eye, skin, and nose irritation, dizziness
4	**sodium lauryl sulphate, tetra sodium& propylene glycol**	shampoo		possible eye damage
5	**polymenthyl menthacrylate**	lipstick		allergies cancer
6	**deodorant**	isopropyl myristate		irritation of skin, eyes and lungs, head ache, dizziness
7	**perfume**	benzaldehyde		irritation to mouth, throat, eyes nausea, kidney damage
8	**body lotion**	methyl paraben propyl paraben polyethylene glycol		Rashes, irritation, hormonal disrupton

Beauty Management through Ayurveda

1. Diet and nutrition

Intake of a balanced diet in terms of nutrients as well as physical form, and its proper digestion and assimilation in the body so that it can nourish all the parts of body to give rise to a healthy body and hence healthy appearance is emphasized in Ayurveda. Since, skin reflects the health of a person, it cannot look healthy and beautiful unless it is properly nourished.

2. Mode of life

Regular cleansing of body both internal and external as well as of mind (through meditation) helps clear up the toxins of internal as well as external environment along with some toning up procedures for body and skin like regular physical exercise yogasanas (specific body postures), body massage, facial massage, foot massage also enhances the beauty.

3. Through Social behaviour

By following Acara Rasayana one can enjoy positive social life and hence also pleasant psyche. As, good social conduct develops good social atmosphere around a person and this helps keeping positive state of mind as well as social surrounding. In the absence of it person remains tensed leading to vitiation of Vata giving rise to dull and lustreless face, various abnormal presentations like early greying of hair.

Beauty Management through Agadatantra

Herbal Antitoxic drugs for skin diseases:

Sl No	Drug Name	Botanical Name	Name of Antitoxic formulation	Action against cosmetic toxicity
1	*Useera*	Vetiveria zizanioides	*Lodrasevyadi agada, Himavan agada*	Varnya - promoting complexion
2	*Sveta candana*	Santalum album	*Lodrasevyadi agada, Kalyanakam Gritam*	Varnya - promoting complexion
3	*KumKuma*	Crocus sativus	*Ksharagada*	Varnya - promoting complexion
4	*Padmaka*	Prunus cerasoides	*Lodrasevyadi agada, Kalyanakam Gritam, Himavan Agada*	Varnya - promoting complexion
5	*Madhuka*	Glycyrrhiza glabra	*Vishgna*	Varnya - promoting complexion
6	*Manjistha*	Rubia cordifolia	*Vishagna gana*	Varnya - promoting complexion
7	*Sariva*	Hamidesmus indicus	*Ksharagada, Ajeya agada, Kalyanakam Gritam*	Varnya - promoting complexion
8	*Sita*	Cynodon dactylon	*Ajeya agada*	Varnya - promoting complexion
9	*Haridra*	Curcuma longa	*VilwadiAgada, Ajeyaagada, Ksharagada, Vishagna gana*	Varnya - promoting complexion

Discussion:

Correlation of Cosmetic Toxicity with the concept of Dooshi visha

Now a day several toxins are present in foods, vegetables, water and in atmosphere. Environmental Toxins enter into human body by two different routes i.e. external or internal. Long term use of chemical products produces various toxic hazardous effects to the human body.

This type of toxicity is known as Cumulative toxicity. Cumulative toxicity is like Dushi Visha concepts explain by Acharya Sushruta. Humans are constantly exposed to these environmental toxic chemicals in their day today life. Now a day each and everything like food, water, air, soil, milk, etc. are polluted. For e.g. Synthetic hormones are in the milk, meat and other dairy product we eat. Pesticides, herbicides and fungicides are also present in grains and vegetables. These toxins enter into our body by different routes. They enter the system through blood circulation, and retention of these toxins results Toxaemia which slowly affect our vital system and immune system and can cause various diseases. According to Acharaya Sushruta, Dushi Visha3 is defined as the toxin having origin plant, animal or artificial poison, that has not been eliminated, neutralized or remains in the body for a long time and manifested some disease if not treated. Cosmetics are one of them having some hazardous chemical also. Every person wants to look more impressive, beautiful and smart. Cosmetics are the products use for external application to improve the appearance and self-confidence of a person. Although the aim is not always achieved, because it depends upon the selection of the quality of product which is based on the type of skin like oily, dry, normal or combine. Due to poor quality of products, lack of experience and skill person cannot achieve his or her goal. According to dermatologist cosmetics may be grouped as. Skin Care Cosmetics –Cleansing agent, moisturizing agent. Hair Care Cosmetics-Shampoo, Hair, Colour agent etc. Face Care Cosmetics-Facial foundation, Powder, eye shadow, lipsticks etc. Nail Care Cosmetics- Nail paint, Paint remover. Fragrance Product-Deodorants, Perfumes etc. These product act as a cumulative poison in the body and later it produces severe side effects in the body like skin rashes, eczema, psoriasis, allergic dermatitis, hair fall, greying of hair, skin discolouration's etc. Antitoxic drugs those are having Varnya action can be used as a remedy for diseases which are caused due to cosmetic toxicity. Dooshivisha4,5 can be treated by performing Snehana, Swedana, Shodhana- Vamana and Virechana followed by Dooshivishari agada administration orally along with honey6,7.

Conclusion:

From above discussion, we can conclude that Dooshi Visha can be consider as cumulative toxicity. In case of cosmetic products after long time usage. The symptoms will produce as like of Dooshi Visha. Therefore, the management of chemical toxicity of cosmetic will be same as the treatment for Dooshi Visha janya vyadhi and Antitoxic drugs those are having Varnya action can be used as a remedy for diseases which are caused due to cosmetic toxicity.

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PROSPECTIVE AGADA FORMULATION IN THE MANAGEMENT OF CARCINOMA

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ABSTRACT

Agadatantra is one among the Astanga Ayurveda which deals with the management of toxicity. Here we have detailed description about some unique conceptsGaravisha and Dooshivisha, which is more relevant in managing present day challenging diseases. With modernization every individual is exposed tonumerous chemicalsor toxins inone or the other formsthroughpesticides, environmental pollutants, adulterants, cosmetics etc. These may land up in causing disorders like cancer, skin diseases, stroke, heart attack etc. Cancer is a group of diseases involving abnormal cell growth of diseases with the potential to invade or spread to other parts of the body. The cancer incidence in men is estimated to be 679,421 in 2020 and 763,575 in 2025, while among women, it is estimated to be 712,758 in 2020 and 806,218 in 2025. The oral, lung and colorectal cancers were the most common cancers among men. Increase in number of cases day by day has become a burden on society,with limited resources in managing such conditions quest for novel drugs remains eminent. After studying the etiopathological factor in view of Ayurveda as well as modern medicine cancer can be correlated to symptoms mentioned underdooshivisha. These are the agada formulation such as Ksharaagada, Amrita ghrita, Gandhahastiagada, Mahagandhahastiagada and Lodradi agada have the potential in managing cancer.

Keywords: Dooshivisha, Management of cancer, Kshara agad, Amrita gritha, Lodradi agada.

INTRODUCTION

Cancer is a generic term for large group of diseases characterized by the development of abnormal cells that divide uncontrollably and have the ability to infiltrate and destroy normal body tissue. It often has the ability to spread throughout the body. Cancer is the second leading cause of death in the world1. According to WHO per year 18.1millon cancer cases are found in that 9.6 million deaths and 1out of 6 deaths is due to cancer2. With modernization every individual is exposed to one or the other forms of toxins such as pesticides, environmental

pollutants, adulterants, cosmetics etc. This has created lot of burden on society as well as individual families.

In the present era chemotherapy and radiotherapy are considered the ultimate treatment procedure for the management of cancer. The aim of both treatment are to destroy cancer cells and limit cell growth3. However during these treatments normal cells are also affected. After successful completion of chemotherapy and radiotherapy some develop symptoms which resembles symptoms of dooshivisha4.

AIM & OBJECTIVE

1. Collect literary aspect of cancer.
2. To collect Agada formulation in the management of carcinoma.

MATERIALS & METHODS

The sources of data will be collected from Brihatrayees, Laghutrayees and contemporary text books, relevant journals and websites.

Some of the formulations such as Kshara agada5, Gandhahasti agada6, Mahagandhahasti agad7 Amrita ghrita8 and Lodradi agada9 listed below.

TABLE 1-RASA PANCHAKA OF KSHARA AGADA10

S.NO	*DRAVYA*	*RASA*	*GUNA*	*VEERYA*	*VIPAKA*	*DOSHAGNATHA & KARMA*	PHARAMACOLOGICAL ACTION
1	*Ashwakarna* *Dipterocarpus Turbinatus*	*Kashaya* *Madhur a*	*Laghu* *Ruksha*	*Ushna*	*Katu*	*Tridoshahara Lekhana* *Sthambana*	

2	*Dhava* *Anogeissus latifolia*	*Madhur a* *Kashaya*	*Laghu* *Ruksha*	*Sita*	*Katu*	*Kaphapittahara*	Microbicidal activity Antiulcer potential Hypolipidemic activity Hepatoprotective Potential
3	*Shirisa* *Albizia lebbeck*	*Tikta* *Kashaya*	*Laghu*	*Anushna* *Madhura Katu*	*Katu*	*Tridoshahara* *Shothhara* *Vishapaha* *Kushtaghna*	Anti-inflammatory Anti-histaminic Anti anaphylactic Anti-microbial Anti asthmatic
4	*Palasa* *Butea monosperma*	*Kashaya* *Katu* *Tikta*	*Laghu* *Snigdha*	*Ushna*	*Katu*	*Kaphavatahara* *Krimighna*	Antihelmintic Antiallergic Laxative Tonic Aphrodisiac Diuretic
5	*Tinisa* *Lagerstroemia Speciosa*	*Kashaya*	*Laghu* *Ruksha* *Tiks*	*Sita*	*Katu*	*Kaphavatahara* *Krimighna* *Pandu*	Antimicrobial Antidiabetic Antidepressant

			na			*ghna*	
6	*Nimba* *Azadirachta indica*	*Tikta* *Kashaya*	*Laghu*	*Sita*	*Katu*	*Kaphapittahara* *Krimighna* *Mehanut*	Analgesic Anti-inflammatory Antiallergic Antimicrobial
7	*Patali* *Stereospermu m sauvealens*	*Tikta* *Kashaya*	*Laghu* *Ruksha*	*Anushna*	*Katu*	*Tridoshashamaka*	Antiulcer Gastro protective Neuro protective Hepatoprotective
8	*Paribhadra* *Erythrina indica*	*Tikta* *Katu*	*Laghu*	*Ushna*	*Katu*	*Kaphavatashamak a* *Soth a* *krimi ghna*	Anti-inflammatory Antimicrobial Antioxidant Antiobesity
9	*Amra* *Mangifera*	*Kashaya*	*Laghu* *Ruksha*	*Sita*	*Katu*	*Kaphapittahara* *Raktasangrahaka*	Antibacterial Antifungal

	indica					*Hridya*	Antioxidant Antiviral Antipyretic Antiamoebic
10	*Udumbara Ficus Racemosa*	*Kashaya Madhura*	*Guru Ruksha*	*Sita*	*Katu*	*Kaphapittahara Raktasangrahak Sthamana Vranaropana*	Antidiuretic Antitussive Antihelmintic Anti-inflammatory Antibacterial
11	*Karahata Randia dumetorum*	*Madhura Tikta*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kphavatahara Lekhana chardana*	

12	*Arjuna* *Termina lia arjuna*	*Kashaya*	*Ruksha* *Laghu*	*Sita*	*Katu*	*Kaphap ittahara* *Raktast hambak a* *Sandha neeya vranaro pana*	Inotropic Anti-ischemic Antioxidant antihypertropic
13	*Kakubha*	*Kashaya*	*Ruksha* *Laghu*	*Sita*	*Katu*	*Kaphapitta hara*	
14	*Sarja* *Vaterica*	*Kashaya* *Tikta*	*Snigdha*	*Sheeta*	*Katu*	*Kaphavata hara* *Sulaghna*	Anti-inflammatory Anthelmintic
	indica					*Kustaghna raktacapah ara*	Antiulcer Antitumor Anticancer
15	*Kapitana* *Albizzia lebbeck*	*Tikta Kashaya*	*Laghu*	*Anushna* *Madhura. katu*	*Katu*	*Tridoshahara Vishgna Sothgna Vranaropana*	Antioxidant Antimicrobial Anticancer Hepatoprotective
16	*Shleshmantaka* *Cordia dichotoma*	*Kashaya Tikta Madhur a*	*Snigdha Guru*	*Sheeta*	*Katu Madhura*	*Pittavatashamaka Vishagna Kushatagna Vranropana*	Antibacterial Antiviral Antitussive Anthelmintic

17	*Ankota* *Alangium Salvifolium*	*Tikta Katu Kashaya*	*Laghu Snigdha Tikshna*	*Ushna*	*Katu*	*Kaphapittahara Vishgna Krimigna Rechaka*	Antiepileptic Antidiabetic Analgesic Anti-inflammatory
18	*Amalaka* *Embelica officinale*	*Pancharasa*	*Guru Sheeta*	*Sheeta*	*Madhura*	*Tridoshahara Rochaka Hridya Grahi*	Antimicrobial Antioxidant Anti-inflammatory Radio-protective Hepatoprotevtive Antitussive
19	*Praghraha* *Pongamia pinnata*	*Tikta Katu Kashaya*	*Laghu Tikshna*	*Ushna*	*Katu*	*Kaphavatahara Vishagna Bhedana Sothahara*	Anti-inflammatory Analgesic Anti-ulcerogenic
20	*Kutaja Holarrhena antidysentrica*	*Tikta Kashaya*	*Laghu Ruksha*	*Sheeta*	*Katu*	*Kaphapittahara Shosagna Raktaatisaraahara vranaropana*	Analgesic Antibacterial Antioxidant Antimutegenic
21	*Shami Prosopis Cineraria*	*Kashaya* *Madhura*	*Laghu* *Rooksha*	*Sheeta*	*Katu*	*Kaphapittahara Sangrahi Kushtangna Recaka*	Analgesic Antipyretic Antimicrobial Antihyperlipidemic
22	*Kapittha* *Feronia Limonia*	*Madhura Amla*	*Guru Snigdha*	*Sheeta*	*Madhura*	*Vatapittahara*	Antibacterial

23	*Ashmantaka Ficus rumphii*	*Kashaya*	*Laghu Ruksha*	*Sheeta*	*Katu*	*Kaphapittahara Vishgna Dahaprashamana*	Antioxidant
24	*Arka* *Calatropis gigantean*	*Katu Tikta*	*Laghu Ruksha Tikshna*	*Ushna*	*Katu*	*Vatakaphahara Kushtagna Raktashodaka*	Antimicrobial Anthelmintic Anti-inflammatory

						visagna	Analgesic Anticancer Antioxidant hepatoprotective
25	*Chirabilwa* *Holoptelea integrifolia*	*Tikta* *Kashaya*	*Laghu* *Ruksha*	*Ushna*	*Katu*	*Kaphapittahara* *Krimigna* *Kushatagna*	Anti-inflammatory Anti-convulasant
26	*Mahavriksha*						

27	*Aruksh kara Semeca rpus Anacar dium*	*Katu Tikta Kashaya*	*Laghu Tikshna Snigdha*	*Ushna*	*Madhura*	*Kaphava tahara Visagna Chedana Dipana*	Antioxida nt Antimicro bial Anti-inflammat ory Anticarcin ogenic
28	*Aralu Ailan thus excel s*	*Tikta Kashaya*	*Ruksha*	*Sheeta*	*Katu*	*Kaphapit tahara Dipana Grahi Stambana*	Antibacter ial Antifungal
29	*Mad huka Mad huka Indic a*	*Madhur a Kashaya*	*Guru Snigdha*	*Sheeta*	*Madhura*	*Vatapittah ara Balya Dahaprash amana Svasagna*	Antiulcer Anti-inflammat ory Antioxida nt Antidaibet ic
30	*Madhu*	*Sweet*	*Laghu*	*Ushna*	*Madhura*	*Kaphapittaha ra*	Antibacter ial
		Kashaya	*Ruksha*			*Lekhana*	Anti-inflammat ory
31	*Shigru Moringa Oleifera*	*Katu Tikta*	*Laghu Ruksha Tikshna*	*Ushna*	*Katu*	*Kaphavataha ra Vishagna Shotagna Krimigna*	Hepatopro tective Anticance r

							Antimicrobial Antioxidant Antiallergic
32	*Goji*						
33	*Murva* *Marsdenia tenacissima*	*Tikta Kashaya*	*Ruksha Guru*	*Ushna*	*Katu*	*Tridoshahara Kandugna Kushtagna Raktapittagna*	Antitumor Antianemic Cardioprotective
34	*Tilwaka* *Symplocos Racemosa*	*Tikta Kashaya*	*Laghu Ruksha*	*Sheeta*	*Katu*	*Kaphapittahara*	Antidiarrheal Anti-inflammatory Anticancer Hepatoprotective Antioxidant
35	*Ikshuraka* *Asteracantha logifolia*	*Madhur a*	*Guru Snigdha*	*Sheeta*	*Madhura*	*Vatapittahara*	Antitumor Antibacterial Hepatoprotective Hypoglycemic
36	*Gopagonta*						
37	*Arimeda*	*Kashaya*	*Laghu*	*Sheeta*	*Katu*	*Kaphapittahara*	Antioxidant
	Acacia farnesiana	*Tikta*	*Ruksha*				Antimicrobial
38	*Go mutra*						
39	*Pippalimula Pipper longum*	*Katu*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kaphavatahara Bhedana Agnidipaka Gulmagna Krimigna*	Antipyretic Analgesic Anti-inflammatory Hepatoprotective Antioxidant

40	*Tanduliyaka* *Amaranthus spinosa*	*Madhur a*	*Laghu*	*Sheeta*	*Madhura*	*Pittakaphahara*	Antipyretic Antidaibetic Antihelmintic
41	*Varaga* *Cinnamomum zeylanicablum e*	*Katu* *Tikta* *Madhur a*	*Laghu* *Rooksa* *Tikshna*	*Ushna*	*Katu*	*Vatakaphahara*	
42	*Chocha*						
43	*Manjista* *Rubia cardifolia*	*Tikta* *Kashaya* *Madhur*	*Guru* *Rooksa*	*Ushna*	*Katu*	*Kaphapittahara* *Vranaropana* *Kusthagna*	Anticancer Anti-inflammatory Antiseptic

		a				*Vishagna*	Antimicribial Hepatoprotevtive
44	*Karanjika*						
45	*Hastipippali* *Scindapsus Officinalis*	*Katu*	*Laghu* *Rooksh a* *Tikshna*	*Ushna*	*Katu*	*Kaphashamaka*	Antioxidant Anticancer Anti-inflammatory Antihelmintic Antiviral

46	*Maricha* *Piper nigrum*	*Katu*	*Laghu* *Tikshna* *sookshma*	*Ushna*	*Katu*	*Kaphavatashamak a* *Agnidipana* *Chedana* *Krimigna* *Shulagna*	Anti-inflammatory Anticancer Antioxidant Antimicrobial Analgesic
47	*Vidanga* *Embelia ribes*	*Katu* *Kashaya*	*Laghu* *Rooksh a* *Tikshna*	*Ushna*	*Katu*	*Kaphavatashamak a* *Shulagna* *Varnya* *Kushtagna*	Antihelmintic
48	*Grahadhuma*						
49	*Ananta* *Hemidesmus indicus*	*Madhur a* *Tikta*	*Guru* *Snigdha*	*Sheeta*	*Madhura*	*Tridoshashamaka* *Vishagna Balya Kushtagna*	Anticancer Hepatoprotective Antioxidant Antidiabetic Antimicrobial
50	*Katphala Myrica nagi*	*Kashaya* *Tikta*	*Laghu Tikshna*	*Ushna*	*Katu*	*Kaphavatashamak a*	Antioxidant Antibacterial Antihelmintic Antidiabetic

		Katu					
51	*Devadaru* *Cedrus deodara*	*Kashaya* *Tikta* *Katu*	*Rooksh a Laghu*	*Ushna*	*Katu*	*Kaphavatashamak a* *Vibhandhahara* *Shotahara* *Kandugna* *kusthahara*	Antifungal Antibacterial Antitubercular Insecticidal Antioxidant
52	*Jalavetasa*						
53	*Kesara* *Mesua ferrea*	*Tikta* *Katu* *Kashaya*	*Laghu* *Ruksha*	*Ushna*	*Katu*	*Kaphapittahara* *Raktasthambak* *Grahi* *Kustagna*	
54	*Shalaparni* *Desmodium gangeticum*	*Madhur a* *Tikta*	*Guru* *Snigdha*	*Ushna*	*Madhura*	*Tridoshahara* *Vishgna* *Balya*	Rejuvenation Aphrodisiac

						Shotagna *Krimigna*	
55	*Koshamra* *Schleichera* *Oleosa*	*Amla*	*Guru*	*Ushna*	*Katu*	*Kaphavataharа* *Kustagna* *Shotagna* *vranaropana*	Anti-inflammatory Analgesic

56	*Shweta sarshapa* *Sinapis alba*	*Katu* *Tikta*	*Laghu* *Snigdha*	*Ushna*	*Katu*	*Kaphavatahara*	Antioxidant Anti-inflammatory Antimicrobial Chemoprotective
57	*Varuna* *Crateva nurvala*	*Tikta* *Kashaya* *Madhura*	*Laghu* *Rooksha*	*Ushna*	*Katu*	*Kaphavataharа Krimigna* *Dipana* *Gulmagna*	Anti-inflammatory Antibacterial Analgesic Cardioprotective
58	*Lavana*	*Lavana*	*Guru* *Snigdha*	*Ushna*		*Tridoshahara* *Shotahara* *Vibhandahara* *Vranadoshahara*	
59	*Plaksha* *Ficus lacor*	*Kashaya*	*Guru* *Rooksh*	*Katu*	*Sheeta*	*Kaphapittahara* *Vranaropana*	Hepatoprotective Antiarthritic

			a			*Raktapittagna Shotagna*	
60	*Tagara* *Valerian awallichii*	*Katu Tikta Kashaya*	*Laghu Snigdha*	*Ushna*	*Katu*	*Tridoshahara Vishagna Vranaropana Shulagna*	Analgesic Neuroprotective
61	*Haratala* *Arsenic trioxide*	*Katu Kashaya*	*Snigdha*	*Ushna*		*Kaphapittahara*	
62	*Eranda* *Ricinus Communis*	*Madhura Katu Kashaya*	*Snigdha Tikshna Sooksh ma*	*Ushna*	*Madhura*	*Kaphavatahara Sulagna Shotagna Krimigna Bedana*	Anti-inflammatory Analgesic Antioxidant antitumor
63	*Dravanti* *Baliosperm montanum*	*Katu*	*Guru Tikshna*	*Ushna*	*Katu*	*Kaphapittahara*	Anticancer Antimicrobial Immuno modulatory Hepatoprotective
67	*Saptaparna* *Alstonia scholaris*	*Tikta Kashaya*	*Laghu Snigdha*	*Ushna*	*Katu*	*Tridoshahara Vranaropaka Kushatagna*	Antimicrobial Antioxidant Anti-inflammatory

						Gulmgna	Anticancer Radiation protection

68	*Shyonaka* *Oroxylum indicum*	*Madhura* *Tikta* *Kashaya*	*Laghu* *Rooksha*	*Ushna*	*Katu*	*Kaphavatahara* *a Stambaka* *Vranaro[paka* *Shotahara* *Rechaka*	Anticancer Antioxidant Hepatoprotective Immunomodulatory Analgesic Gastroprotective
69	*Elavaluka* *Prunus cerasus*	*Kashaya*	*Laghu*	*Sheeta*	*Katu*	*Kaphapittahara*	Antioxidant Anti-inflammatory
70	*Nagadanti* *Croton oblongifolius*	*Katu*	*Guru* *Tikshna*	*Ushna*	*Katu*	*Kaphapittahar* *a Vishgna* *Gulmagna* *Shulagna* *Kustagna*	Hepatoprotective
71	*Ativisha* *Aconoitum hyterophyllum*	*Katu* *Tikta*	*Laghu* *Rooksha*	*Ushan*	*Katu*	*Kaphapaittahar* *a Krimigna* *Shotagna* *Lekhana* *Vishagna*	Antipyretic Anti-inflammatory Antihyperlipidemic
72	*Abhaya* *Terminalia*	*Madhura*	*Laghu*	*Ushna*	*Madhura*	*Tridosha* *hara*	Antioxidant

						Krimigna	
	chebula	*Amla* *Katu* *Tikta* *Kashaya*	*Ruksha*			*Kushtagna* *Shotagna* *Gulmagna*	Anti-inflammatory Wound healing
73	*Bhadradaru* *Cedrus deodara*	*Tikta* *Katu* *Kahsaya*	*Ruksha Laghu*	*Ushna*	*Katu*	*Kaphavataha ra Shotagna* *Kandugna* *Kustagna*	Anti-inflammatory Analgesic Anticancer Insecticidal Antiapoptoic
74	*Kusta* *Saussurea lappa*	*Tikta* *Katu* *Madhura*	*Laghu Ruksha Tikshna*	*Ushna*	*Katu*	*Kaphavata hara* *kushtagna* *Raktashodaka Varnya*	Hypolipidarmic Antiseptic Antibacterial Insecticidal Anti-inflammatory
75	*Haridra Turmeric curcuma*	*Katu* *Tikta*	*Rooksa Laghu*	*Ushna*	*Katu*	*Vatakaphahara Vishagna* *Kandugna* *Vranaropaka* *Raktadoshahara* *Rasayana*	Antipyretic Tonic Antiseptic
76	*Vacha* *Acorus*	*Katu* *Tikta*	*Laghu* *Tikshna*	*Ushna*	*Katu*	*Kaphavataha ra* *Lekhana*	Anti-inflammatory Immunomodulatory

	calamus					*Shulagna*	Anticonvulsan carminative
78	*Loha*						
79	*Tamra*						

TABLE-2 RASA PANCHAKA OF GANDHAHASTI AGADA[11]

S.NO	*DRAVYA*	*RASA*	*GUNA*	*VIRYA*	*VIPAKA*	*DOSHAGNATA*	MACOLOGICAL ACTIONS
1	*Shweta katabhi* *Celastraceae paniculata*	*Katu* *Tikta*	*Tikshna Sara* *Snigdha*	*Ushna*	*Katu*	*Kaphavatahara*	promoter Appetizer Stimulant nd digestive
2	*Vacha* *Acorus calamus*	*Katu* *Tikta*	*Laghu* *Tikshana*	*Ushna*	*Katu*	*Kapha* *vataha* *ra* *Lekha* *na*	ge Carminati ve Traquilize r
3	*Ashwagandha* *Withania somnifera*	*Katu* *Tikta* *Kashaya*	*Snigdha* *Laghu*	*Ushna*	*Madhura*	*Vatak* *aphah* *ara* *Balya* *Raktas* *hodak* *a* *Shotah* *ara* *Rasayana*	Hypotonic Antiseptic Antimitiot ic or

4	*Hingu* *Ferula asafoetida*	*Katu* *Tikta*	*Laghu* *Snigdha* *Tikshna*	*Ushna*	*Katu*	*Kapha* *vataha* *ra* *Gulma* *gna* *Shulag* *na* *Kandu* *gna*	tive Contraseptive Antimicrobial Antiepileptic stimulant

5	*Amrutha* *Tinospora cordifolia*	*Kashaya* *Tikta*	*Guru* *Snigdha*	*Ushna*	*Madhura*	*Tridoshashamaka* *Raktashodaka* *Vishagna* *Krimigna* *Rasayana*	Antipyretic Diuretic
6	*Kushta* *Saussurealappa*	*Tikta* *Katu* *Madhura*	*Laghu* *Ruksha* *Tikshna*	*Ushna*	*Katu*	*Vatakaphahara* *kushtagna* *Raktashodaka Varnya*	Hypolipidaemic Antiseptic Antibacterial Insecticidal Insect repellent Anti - inflammatory Bronchodialator

7	*Saidhava*	*Madhura Lavana*	*Laghu Snigdha*	*Sheeta*	*Madhura*	*Tridoshahara Shotahara Vibhandahara Vranadoshahara*	
8	*Lashuna Allium Sativum*	*Madhura Lavana Katu Tikta Kashaya*	*Snigdha Guru Tikshna Sara*	*Ushna*	*Katu*	*Vatakaphahara Raktavardaka Gulmahara Shotagna Shulagna*	Carminative Aphrodisiac Expectorant Disinfectant Stimulant Rubefacient
9	*Sarshapa Brassica nigra*	*Katu Tikta*	*Tikshna Laghu Snigdha*	*Ushna*	*Katu*	*Kaphavatahara*	Laxative Diuretic Diaphoretic

							Antibacterial
10	*Kapittamadhya Feronia elephantum*	*Kashaya Amla*	*Guru Ruksha*	*Sheeta*	*Katu*	*Vatapittashamaka*	

11	*Tuntuka* *Oroxylum Indicum*	*Tikta* *Madhura* *Kashaya*	*Laghu* *Tiksh na*	*Ushna*	*Katu*	*Kaphavatahara* *Stambana* *Shotahara* *Rechaka*	Antiinflammatory Antiarthritic Diaphoretic Antibacterial
12	*Karanja* *Pogamia pinnata*	*Tikta* *Katu* *Kashaya*	*Laghu* *Tiksh na*	*Ushna*	*Katu*	*Kaphavatahara* *Bhedana* *Vishagna* *Kushtagna*	Hypoglycemic Antipyretic Hypotensive Insecticidal Wound healing Anthelmintic
13	*Shunti* *Zingibera officinale*	*Katu*	*Laghu* *Ruksh a* *Tiksh na*	*Ushna*	*Madhura*	*Vatakaphahara* *Vranaropana* *Shothhara* *Balya*	Stimulant Diagestive Carminative Aphrodisiac Diuretic Stimulant Sialagogue
14	*Pippali* *Piper longum*	*Katu*	*Tiksh na* *Laghu* *Snigd ha*	*Ushna*	*Madhura*	*Vatakaphahara* *Rechaka* *Rasayana* *kusthagna*	Appetizer Digestive Carminative Aphrodisiac Diuretic Stimulant Vermifuge

15	*Maricha Piper nigrum*	*Katu*	*Laghu Tiksh na*	*Ushna*	*Katu*	*Kaphavatahara Agnidipana Chedana Krimigna Shulagna*	Antiallergic Analgesic Anti-inflammatory Antioxidant
16	*Shirisha Albizzia lebbeck*	*Kashaya Tikta*	*Laghu Ruksh a Tiksh na*	*Anushna*	*Katu*	*Tridoshahara Vranaropana Vishagna Kustagna Shotagna*	Hepatoprotecti ve Antiallaergic Immunostimul ent Anticancer Stimulant Antioxidant Antihyperlipid imic Antimicribial
17	*Haridra Curcuma longa*	*Tikta Katu*	*Ruksh a Laghu*	*Ushna*	*Katu*	*Kaphavatahara Vishagna Kandugna Vranaropaka Raktadoshahar a Rasayana*	Stomachic Tonic Antipyretic

18	*Daruharidra Berberis aristata*	*Tikta Kashaya*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kaphapittahara Shotahara Raktashodhaka Vranaropana*	Stomachic Tonic Antipyretic
19	*Vamsalochana Bombusaarundinacea*	*Madhura Kashaya*	*Laghu Ruksha*	*Sheeta*	*Madhura*	*Kaphapittahara*	Expectorant Antipyretic Analgesic Anti-inflammatory Ulcer healing Febrifuge
20	*Aja mutra*	*Kashaya Madhura*	*Tiksha na snigdha*	*Ushna*		*Tridoshashamaka*	

21	*Go pitta and ja pitta*	*Tikta*		*Ushna*		*Vatashleshmavi nashini*	

TABLE-3RASA PANCHAKA OF MAHAGANGHAHASTI AGADA[12]

S.NO	*DRAVYA*	*RASA*	*GUNA*	*VEERYA*	*VIPAKA*	*DOSHAGNA*	PHARMACOLOGICAL ACTIONS
1	*Tejapatra Cinnamonum tamala*	*Katu Tiktha Madhura*	*Laghu Ruksha Tiksh na*	*Ushna*	*Katu*	*Kaphavatahara Krimigna Kushtagna Sulagna*	Antibacterial Antifungal Cytoprotective Carminative
2	*Agaru Aquilaria agallocha*	*Katu Tiktha*	*Laghu Tiksh na*	*Ushna*	*Katu*	*Kaphavatahara Twachya Shotahara Rasayana Vedanasthapana*	Antipyretic Analgesic Antioxidant
3	*Mustaka*	*Katu*	*Laghu*	*Shita*	*Katu*	*Kaphapittahar*	Anti-inflammatory
	Cyprus rotundus	*Tiktha Kashaya*	*Ruksha*			*a Vranaropaka*	Hepatoprotective antimivrobial

						Balya *Vishagna*	Anticonvulgent
4	*Ela* *Elettaria cardamom*	*Katu* *Madhura*	*Laghu* *Rukha*	*Shita*	*Katu*	*Kaphavatahar*	Anticonvulgent Antioxidant Antimicrobial Anti-inflammatory
5	*Rala* *Shora rodusta*	*Tiktha* *Kashaya*	*Snigdha* *Guru*	*Shita*			
6	*Guggulu* *Commiphora wightii*	*Tiktha* *Katu*	*Lghu* *Ruksha* *Vishada* *Sukshma* *Sara*	*Ushna*	*Katu*	*Vataharа* *Shotaharа* *Vranaropana* *Balya* *Rasayana*	Anti-inflammatory
7	*Aphima*						
8	*Shilajatu*						
9	*Loha*						
10	*Chandana* *Santalum album*	*Tiktha* *Madhura*	*Ruksha* *Laghu*	*Shita*	*Katu*	*Kapha pittaharа* *Raktadoshaharа* *Grahi*	Antibacterial Antifungal Antioxidant Antiviral

						Kandugna	Bloodpurifier
11	*Sprukka* *Anisomeles*	*Tiktha*	*Shita*				Antiallergic

	malabarica						Anti-anaphylactic Antibacterial Anticancer Anticarcinogenic
12	*Twak* *Cinnamom zeylanica*	*Katu* *Tiktha* *Madhura*	*Laghu* *Ruksha* *Tikshna*	*Ushna*	*Katu*	*Vatakaphahara* *Sthambhana* *Krimigna* *Shonitasthapana*	Antimicrobial Anti-inflammatory Anti-spasmodic Anti-clotting
13	*Nalada*						
14	*Utphal a* *Nymphae a*	*Madhura* *Tiktha* *Kashaya*	*Laghu* *Snidha* *Picchila*	*Shita*	*Madhura*	*Pittakaphahara*	Anti-inflammatory Hepato protective Anti-diabetic

	al *ba*						
15	*Sugandha bala*						
16	*Harenu* *Pisum sativum*	*Madhura*	*Laghu* *Ruksha*	*Shita*	*Madhura*		Anti-oxidant
17	*Ushira* *Vetiveria zizanioives*	*Tiktha* *Madhura*	*Ruksha* *Laghu*	*Shita*	*Katu*	*Vatapittahara* *Stambaka* *Vishagna* *Dahaprashamana*	Antifungal Anti-emetic
18	*Vanyanakha*						

19	*Devadaru* *Cedrus deodara*	*Tiktha Katu* *Kashaya*	*Ruksha* *Laghu*	*Ushna*	*Katu*	*Kaphavatahara* *Shotagna* *Kushtagna* *Kandugna*	Anti-infalmmatory Immunomodulator Anti cancer Antibacterial

20	*Kanaka Datura metel*	*Tiktha Katu*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kaphavatahara Kushtagna Vishagna Varnya Krimigna*	Antihelmenthic Analgesic Anti-inflammatory
21	*Kumkuma Crocus sativus*	*Katu Tiktha*	*Snigdha*	*Ushna*	*Katu*	*Tridoshahara*	Anti-inflammatory Anticancer Analgesic
22	*Dhyamaka Cymbopogon martini*	*Katu Tiktha*	*Laghu Ruksha Tikshna*	*Ushna*	*Katu*	*Kaphavatahara Raktashodaka*	Antimicrobial Antibacterial
23	*Kushta Saussurea luppa*	*Tiktha Katu Madhura*	*Laghu Ruksha Tikshna*	*Ushna*		*Kaphavatahara Vishgna Kandugna Twakarogahara*	Antiseptic Antibacterial Insecticidal Anti-inflammatory
24	*Priyangu Callicarpa macrophyla*	*Tiktha Kashaya Madhura*	*Laghu Ruksha*	*Shita*	*Katu*	*Tridoshashamaka*	Analgesic Antipyretic Diuretic Antipoisoning
25	*Tagara*	*Katu*	*Laghu*	*Ushna*	*Katu*	*Tridoshahara*	Sedativesssss

	Valeriana wallichii	*Tiktha Kashaya*	*Snigdha*			*Vishagna Kustagna*	
26	*Shirisha(pan changa) Albizia lebbeck*	*Kashaya Tiktha Madhura*	*Laghu Ruksha Tikshna*	*Ishad Ushna*	*Katu*	*Tridosha hara Shotagn a Vranaro pana Kushata gna*	Hepa topro tecti ve Anti aller gic Anti canc er Anti oxid ant Anti micr obial Imm unost imul ant
27	*Shunti Zingiber officinale*	*Katu*	*Guru Rooksha Tikshna*	*Ushna*	*Madh ura*	*Kapha hara Shota hara Kusta gna Balya*	Stim ulant Car mina tive Dige stive Diur etic

28	*Maricha Piper nigrum*	*Katu*	*Laghu Tikshna Sukshma*	*Ushna*	*Katu*	*Kaphavatahara Chedana Lekhana Medohar*	Anti allergic Analgesic Anti-inflammatory Antioxidant
29	*Pippali Piper longum*	*Katu*	*Laghu Tikshna*	*Ushna*	*Madhura*	*Vatakaphahara Rasayana Rechaka Kushtagna*	Appetiser Carminative Digestive Stimulant Vermifuge
30	*Haratala*						
31	*Manashila*	*Tikta*	*Snigdha Ushna Guru*	*Ushna*			
32	*Ajaji*	*Katu*	*Laghu*	*Ushna*	*Katu*	*Kaphavatahara*	Stimulant

	Cuminum cyminum		*Ruksha*			*Gulmagna* *Balya*	Carminative Antioxidant Antimicrobial Anticarcinogenic Immunomodulatory
33	*Shweta aparajitha Clitoria ternatea*	*Katu* *Tiktha* *Kashaya*	*Laghu* *Ruksha*	*Shita*	*Katu*	*Tridoshahara* *Shotagna* *Vranapachana* *Kusthagna* *Vishagna*	Analgesic Antioxidant Anticancer Anti-inflammatory Antimicrobial Antiparasitic
34	*Katabhi* *Celastrus paniculatus*	*Katu* *Tiktha*	*Tikshna*	*Ushna*	*Katu*	*Buddhivardaka* *shirovirechaka*	
35	*Karanja* *Pongamia pinnata*	*Tiktha* *Katu* *Kashaya*	*Laghu* *Tikshna*	*Ushna*	*Katu*	*Kaphavatahara* *Shotahara* *Krimihara*	Anti-inflammatory Analgesic

							Antiulcerogenic
36	*Latakaranja* *Caesalpinia bondus*	*Tiktha* *Kashaya*	*Laghu* *Ruksha*	*Ushna*	*Katu*	*Tridoshahara*	Anticancerous
37	*Rakshogni*						
38	*Sindhuvarika* *Vitex nirgundo*	*Katu* *Tiktha*	*Laghu* *Ruksha*	*Ushna*	*Katu*	*Vatakaphahara* *Vishagna* *Krimigna* *Balya* *Rasayana*	Anti-inflammatory Antibiotic Hepatoprotective Anticonvulsant Antioxidant
39	*Rajani*	*Tiktha*	*Ruksha*	*Ushna*	*Katu*	*Vatakaphahara*	Anti-inflammatory
	Turmeric curcuma	*Katu*	*Laghu*			*Vishgna* *Kandugna* *vranaropana*	Anticancer Neuroprotective Antimutagenic
40	*Surasa Oscimum sanctum*	*Katu Tiktha*	*Laghu Ruksha Tikshna*	*Ushna*	*Katu*	*Vatakaphahara* *Kushtagna* *Shulagna* *Krimihara*	Antioxidant Antiulcer Anticancer Antibacterial Antifungal

41	*Rasanjana Extractum berberis*	*Katu Tiktha*		*Ushna*		*Kaphahara*	Antimicrobial Antioxidant Anti-inflammatory Antiemetic
42	*Gairika*						
43	*Manjishta Rubia Cordifolia*	*Tiktha Kashaya Madhura*	*Guru Ruksha*	*Ushna*	*Katu*	*Kaphapittahar a Kusthagna Sthambhana Rasayana Shotagna*	Anticancer Antimicrobial Antiseptic Anti-inflmmatory Hepatoprotective Nephroprotective
44	*Nimba Azadirachta indica*	*Tiktha Kashaya*	*Laghu Ruksha*	*Shita*	*Katu*	*Kaphapittahar a Dipana Grahi Krimigna*	Antimicrobial Antibacterial Antipyretic Analgesic Hepatoprotective
45	*Vamsha twak Bambusa arundinacea*	*Madhura Kashaya*	*Laghu Ruksha*	*Shita*	*Madhura*	*Kaphapittahar a*	Anti-inflammatory Antiulcer
46	*Ashwagandha Withania somnifera*	*Katu Tiktha Kashaya*	*Snigdha Laghu*	*Ushna*	*Katu*	*Tridoshahara Krimigna Balya Kushatagna*	Neuroprotective Antitumour Antiarthritic Anti-inflammatory

							Analgesic
47	*Hingu Ferula asafetida*	*Katu*	*Laghu Snigdha Tikshna*	*Ushna*	*Katu*	*Kaphavatahara Krimigna Kandugna gulmagna*	Antispasmodic Stimulant Expectorant Vermifuge
48	*Dadhitya*						
49	*Amlavetasa Garcinia pedunculata*	*Amla*	*Laghu Ruksha*	*Ushna*	*Amla*	*Kaphavatahara Bhedana Dipana Shulagna Gilmagna*	Cardiotonic
50	*Laksha Laccifer lacca*	*Kashaya*	*Laghu Snigdha*	*Shita*		*Kaphapittha har a*	Analgesic Anti-inflammatory
51	*Madhu*	*Madhura Anurasa - Kashaya*	*Laghu Ruksha*	*Ushna*	*Madhura*	*Kaphapitta Lekhana*	
52	*Madhuka Madhuca longifolia*	*Madhura Kashaya*	*Guru Snigdha*	*Shita*	*Madhura*	*Vatapittahara*	Hepatoprotective Antoepileptic Antimicrobial Analgesic
							Antidiabetic
53	*Romaraji*						
54	*Ruha*						
55	*Peeta tagara*						

TABLE-4 RASA PANCHAKA OF AMRITHA GRITHA[13]

S.NO	*DRAVYA*	*RASA*	*GUNA*	*VEERYA*	*VIPAKA*	*DOSHAGNATA*	PHARMACOLOGICAL

							ACTION
1	*Sirisha* *Albizia lebbeck*	*Kashaya* *Tikta* *Madhura*	*Laghu* *Rooksha* *Tikshna*	*Ushna*	*Katu*	*Tridoshahara* *Vishagna* *Shotahara* *Vranahara*	Antimicrobial Anti-inflammatory Anti-histaminic Anti anaphylactic Anti-microbial Anti asthmatic Antiallergic
2	*Shunti* *Zingiber officinale*	*Katu*	*Guru*	*Ushna*	*Madhura*	*Kaphahara* *Grahi* *Vrushya* *Ruchya*	Carminative Diagestive Aphrodisiac Stimulant
3	*Maricha* *Piper nigrum*	*Katu*	*Laghu* *Tikshna*	*Ushna*	*Katu*	*Kaphavatahara* *Chedana*	Anti-inflammatory Anticancer
			Sookshma			*Deepana* *Vrishya* *Rechana*	Antioxidant Antimicrobial Analgesic

4	*Pippali* *Piper longum*	*Katu*	*Laghu* *Tikshna*	*Ushna*	*Madhura*	*Vatakaphahara* *Rasayana* *Deepana* *Shulagna* *Rechaka*	Appetizer Carminative Stimulant Vermifuge
5	*Haritaki* *Terminalia chebula*	*Madhura* *Amla* *Katu* *Tikta* *Kashaya*	*Laghu* *Rooksha*	*Ushna*	*Madhura*	*Trodoshahara* *Rasayana* *Vishagna* *Kustagna* *Vranashodaka*	Anoxidant Antimutegenic Anticarcinogenic Cytoprotective Radioprotective
6	*Vibhitaki* *Terminalia bellirica*	*Kashaya*	*Rooksha* *Laghu*	*Ushna*	*Madhura*	*Kaphapitathara* *Bhedana* *Kasagna* *Krimigna* *Shotahara*	Antispasmodic Antitussive Antiasthmatic
7	*Amalaka* *Emblica officinale*	*Madhura* *Amla* *Katu* *Tikta*	*Guru* *Sheeta*	*Sheeta*	*Madhura*	*Tridoshahara* *Agnidipaka* *Grahi* *Hridya*	Antioxidant Cytoprotective Immunomodulatory Anti-inflammatory

		Kashaya					
8	*Chandana* *Santalum album*	*Tikta* *Madhura*	*Laghu* *Rooksha*	*Sheeta*	*Katu*	*Kaphapittahara* *Sosagna* *Raktadoshahara*	Antiallergic Antifungal Antibacterial Antioxidant Analgesic

9	*Utphala* *Nympha* *ea Alba*	*Madhu* *ra* *Kasha* *ya* *Tikta*	*Laghu* *Snigdh* *a* *Picchil* *a*	*Sheeta*	*Madhur* *a*	*Pittakaphaha* *ras*	
10	*Bala* *Sida cordifolia*	*Madhur* *a*	*Guru* *Snigdh* *a* *Picchil* *a*	*Sheeta*	*Madhur* *a*	*Tridosha* *hara* *Balya* *Rasayan* *a* *Vrusya*	Analgesi c Anti- inflamma tory Hypoglyc emic
11	*Atibala* *Abutil* *on* *indicu* *m*	*Madhur* *a*	*Laghu* *Snigdh* *a*	*Sheeta*	*Madhur* *a*	*Vatapittahar* *a* *Rasaya* *na* *Vedana* *hara*	Hepatopr otective Immuno modulato ry Antimicr obial
12	*Sariva* *Hemidism* *us indicus*	*Madhur* *a*	*Guru* *Snigdh* *a*	*Sheeta*	*Madhur* *a*	*Tridosha* *hara* *Raktasho* *daka* *Vishagna*	Antioxid ant Anti- inflammat ion antimicro

							bial
13	*Sphota*	*Katu*	*Laghu*	*Ushna*	*Katu*	*Vatapittahara*	Diaphoretic
		Kashaya					
8	*Chandana* *Santalum album*	*Tikta Madhura*	*Laghu Rooksha*	*Sheeta*	*Katu*	*Kaphapittahara Sosagna Raktadoshahara*	Antiallergic Antifungal Antibacterial Antioxidant Analgesic
9	*Utphala Nymphaea Alba*	*Madhura Kashaya Tikta*	*Laghu Snigdha Picchila*	*Sheeta*	*Madhura*	*Pittakaphaharas*	
10	*Bala* *Sida cordifolia*	*Madhura*	*Guru Snigdha Picchila*	*Sheeta*	*Madhura*	*Tridoshahara Balya Rasayana Vrusya*	Analgesic Anti-inflammatory Hypoglycemic
11	*Atibala* *Abutilon indicum*	*Madhura*	*Laghu Snigdha*	*Sheeta*	*Madhura*	*Vatapittahara Rasayana Vedanahara*	Hepatoprotective Immunomodulatory Antimicrobial
12	*Sariva* *Hemidismus indicus*	*Madhura*	*Guru Snigdha*	*Sheeta*	*Madhura*	*Tridoshahara Raktashodaka Vishagna*	Antioxidant Anti-inflammation antimicrobial

13	*Sphota*	*Katu*	*Laghu*	*Ushna*	*Katu*	*Vatapittahara*	Diaphoretic
	Cardiospermum halicacabum	*Tikta*	*Rooksha*				Antibacterial Antioxidant Anticancer
14	*Asura* *Cissampelos pareira*	*Tikta*	*Laghu Tikshna*	*Ushna*	*Katu*	*Pittakaphahara*	
15	*Nimba* *Azadirachta indica*	*Tikta Kashaya*	*Laghu Rooksha*	*Sheeta*	*Katu*	*Kaphapittahara*	Antimicrobial
16	*Patala* *Stereospermum suaveolens*	*Tikta Kashaya*	*Laghu Rooksha*	*Anushna*	*Katu*	*Tridoshahara*	Anti-inflammatory Antioxidant Antihyperglycemic
17	*Bandujiva*						
18	*Adaki*						
19	*Murva* *Marsdenia tenacissima*	*Tikta Kashaya*	*Guru Rooksha*	*Ushna*	*Katu*	*Tridoshhara Raktapiittagna Kandugna Kushtagna*	Antitumor
20	*Vasa* *Adhatoda*	*Tikta* *Kashaya*	*Laghu* *Rooksha*	*Sheeta*	*Katu*	*Kaphapittahara* *Kushtaghna*	Anti-inflammatory Antimicrobial
	vasica					*Krimigna* *Stamban*	
21	*Surasa* *Ocimum sanctum*	*Katu Tikta*	*Laghu Rooksha*	*Ushna*	*Katu*	*Vatakaphahara Hridya Kushtagna Shulagna*	Antioxidant Anticancer Antiulcer Antibacterial Antifung

							al
22	*Vatsaka Holarrhena antidysentrica*	*Tikta Kashaya*	*Laghu Rooksha*	*Sheeta*	*Katu*	*kaphapittahara*	Gut stimulant
23	*Patha Cissampelos pareira*	*Tikta*	*Laghu Tikshna*	*Ushna*	*Katu*	*Pittakaphahara Kushtagna Gulmagna Krimigna*	Hepatoprotective Anti-inflammatory Antioxidant Antiasthamatic
24	*Ankola* *Alangium salvifolium*	*Tikta Katu*	*Laghu Snigdha Tikshna*	*Ushna*	*Katu*	*Kaphapittahara Kushtagna Pachaka Vranaropana*	Antiepileptic Anthelminthic
25	*Ashwagandha* *Withania somnifera*	*Katu Tikta Kashaya*	*Snigdha Laghu*	*Ushna*	*Katu*	*Tridoshahara* *Balya Rasayana*	Antitumor Anti-inflammatory Neuroprotective
26	*Arkamula*	*Katu*	*Laghu*	*Ushna*	*Katu*	*Vatakaphahara*	Laxative

	Calotropis gigantean	*Tikta*	*Rooksha* *Tikshna*			*Visaghna* *Vranropaka* *Krimigna*	
27	*Yastimadhu* *Glycyrrhiza*	*Madhura*	*Guru* *Snigdha*	*Sheeta*	*Madhura*	*Vatapittahara* *Shotahar*	Antiobesity Antioxidant Anti-inflammatory

	glabra					*a* *Vranropana*	
28	*Padmakata*						
29	*Vishala* *Alstonia scholaris*	*Tikta* *Kashaya*	*Laghu* *Snigdha*	*Ushna*	*Katu*	*Tridoshahara*	Antimicrobial Immunomodulatory Anticancer Antioxidant Hepatoprotective
30	*Brihati* *Solanum indicum*	*Katu* *Tikta*	*Laghu* *Rooksha*	*Ushna*	*Katu*	*Kaphavatahara* *Kushtagna* *Shulagna* *Sothagna*	Antibacterial Antioxidant Anthelmintic

31	*Laksha* *Laccifer lacca*	*Kashaya*	*Laghu* *Snigdha*	*Sheeta*		*Kaphapittahara*	Antiulcerogenic Anti-inflammatory Antipruritics
32	*Kovidara* *Bauhinia Variegata*	*Kashaya*	*Laghu* *Rooksha*	*Sheeta*	*Katu*	*Kaphapittahara*	Antihelmenthic Anti-diabetic Laxative
33	*Shatavari* *Asparagus racemosus*	*Madhura Tikta*	*Guru*	*Sheeta*	*Madhura*	*Vatapittahara* *Balya* *Rasayana*	Antioxidant Antiulcer Immunomodulatory
34	*Katabhi* *Celastrus Paniculata*	*Katu* *Tikta*	*Tikshna*	*Ushna*	*Katu*	*Medya*	Anti-inflammatory Analgesic Sedative Anti-epileptic
35	*Dantimula* *Baliospermum Montanum*	*Katu*	*Guru* *Tikshna*	*Ushna*	*Katu*	*Kaphapittahara* *Raktashodahara* *Vranaropaka*	Pirgative
36	*Apamarga* *Achyranthes Aspera*	*Katu* *Tikta*	*Laghu* *Rooksha* *Tikshna* *Sara*	*Ushna*	*Katu*	*Kapahavatahara* *Vranaropana* *Vishagna*	Antimicrobial Anticancerous Hepatoprotective Antipyretic
37	*Prishnaparni* *Uraria picta*	*Madhura Tikta*	*Laghu* *Snigdha*	*Ushna*	*Madhura*	*Tridoshahara* *Shotahara* *Vrishya* *Vishagna*	Antiseptic Anti-inflammatory Anti-microbial Analgesic
38	*Rasanjana*	*Katu* *Tikta*		*Ushna*		*Kaphadoshahara*	

39	*Swetaban da*						

40	*Ashwakuraka*						
41	*Kuta*						
42	*Devadaru* *Cedrus deodara*	*Tikta* *Katu* *Kasha ya*	*Rooksh a Laghu*	*Katu*	*Ushna*	*Kaphavata hara* *Kandugna* *Kushtagna*	Anti-infalmmat ory Immunom odulator Anti cancer Antibacter ial
43	*Priyangu* *Callicarpa Macrophy lla*	*Tikta* *Kasha ya*	*Laghu* *Ruksh a*	*Sheeta*	*Katu*	*Tridosha hara* *Vishagn a Balya*	Analgesic Antipyreti c Diuretic Antipoiso ning
44	*Vidarikanda* *Puera ria tubero se*	*Madhur a*	*Guru* *Snigdh s*	*Sheeta*	*Madhur a*	*Vatapitta hara* *Sthamba na* *Krimigna*	Anti-inflammat ory Antioxidat ive Antihypert

							ensive Immunomodulatory
45	*Madhuka* *Madhuka longifolia*	*Madhura* *Kashaya*	*Guru* *Snigdha*	*Sheeta*	*Madhura*	*Vatapittahara*	Hepatoprotective Antimicrobial Analgesic Anti-diabetic
46	*Karanja* *Pongamia pinnata*	*Tikta* *Kashaya*	*Laghu* *Tikshna*	*Ushna*	*Katu*	*Kaphavatahara* *Kandugna* *Bhedana*	Analgesic Anti-inflammatory Anti-ulcerogenic
47	*Daruharidra*	*Tikta*	*Laghu*	*Ushna*	*Katu*	*Kaphapittahara*	Antipyretic

	Berberis aristata	*Kashaya*	*Ruksha*			*Vranashodaka* *Rasayana*	Antibacterial Antimicrobial Antihepatotoxic

							Antioxidant Anticancer
48	*Lodhra* *Symplocos racemosa*	*Kashaya* *Tikta*	*Laghu* *Ruksha*	*Sheeta*	*Katu*	*Kaphapittahara* *Stambana* *Grahi*	Anti-inflammatory Anti-dysentry Analgesic Antioxidant

TABLE-5 RASA PANCHKA OF LODHRADI AGADA14

S.NO	*DRAVYA*	*RASA*	*GUNA*	*VEERYA*	*VIPAKA*	*DOSHAGNATA & KARMA*	PHARMACOLOGICAL ACTIONS
1	*Lodhra* *Symplocos racemose*	*Kashaya* *Tikta*	*Laghu* *Ruksha*	*Sheeta*	*Katu*	*Kaphapittahara* *Stambaka* *Vranropana*	Analgesic Hepatoprotective

						Kusht agna	
2	*Sirisha pushpa* *Albizia lebbeck*	*Kashaya* *Tikta*	*Laghu* *Ruksha*	*Ushna*	*Katu*	*Tridosha hara* *Vishagna*	Hepatoprotective Anticancer

		Madhura	*Tikshna*			*Shotahara* *Vranahara*	Antioxidant Immunostimulant Antimicrobial
3	*Samanga* *Mimosa pudica*	*Kashaya* *Tikta*	*Laghu* *Ruksha*	*Sheeta*	*Katu*	*Kaphapittahar a*	Antidaibetic Antitoxin Antihepatotoxin Antioxidant
4	*Hingu* *Ferulaasaphoetida*	*Katu*	*Laghu snigdha* *Tikshna*	*Ushna*	*Katu*	*Kaphavatahar a* *Gulmagna* *Shulagna*	Carminative Antimicrobial

							Antiepileptic Nervine stimulant
5	*Renuka Vitex agnus-castus*	*Katu* *Tikta*	*Laghu*	*Anushna*	*Katu*	*Kaphavatasha maka*	Antimicrobial Antioxidant cytotoxic
6	*Kana Pipper longum*	*Katu*	*Laghu* *Tikshna*	*Ushna*	*Madhura*	*Kaphavata hara* *Rasayana* *Deepana* *Vrishya*	Vermifuge Antipyretic Analgesic Anti-inflammatory Hepatoprotective Antioxidant
7	*Usaanaela Elettaria cardamomum*	*Katu madhura*	*Laghu* *Rukhsna*	*Sheeta*	*Katu*	*Kaphavataharа*	Anticonvulsant Antimicrobial Antioxidant Anti-inflammatory

8	*Nepali Vachga Acorus calamus*	*Katu tikta*	*Laghu Tikshna*	*Ushna*	*Katu*	*Kaphavata hara*	Anti-inflammatory Immunomodulatory Anticonvulsan carminative t
9	*Yastimadhu Glycyrrhriza glabra*	*Madhura*	*Guru snigha*	*Sheeta*	*Madhura*	*Vata pitta hara*	Antioxidant Antiobesity Anti-inflammatory immunostimulating
10	*Utphala Nymphaea alba*	*Madhura Kashya Tikta*	*Laghu*	*Sheeta*	*Madhura*	*Pitta kapha hara*	Antioxidant Anti-inflammatory Anticancer
11	*Sindhuvara Vitex negundo*	*Katutikta*	*Laghu Ruksha*	*Ushna*	*Katu*	*Vatakaphahar a Vedanasthapa na Balya Rasayana*	Antibacterial Anticonvulsant Anticancer
12	*Paribhadra Erythrina indika*	*Katu Tikta*	*Laghu*	*Ushna*	*Katu*	*Kaphavatahar a Rochana*	Antioxidant Anti-inflammatory Antimicrobial

						Krimigna Kushtagna	

13	*Karanja beeja Pongamia pinnata*	*Tikta Katu Kashaya*	*Laghu*	*Ushna*	*Katu*	*Kaphavatahara Bhedana Vishagna Kandugna*	Antipyretic Hypoglycemic Insecticidal Anthelmintic
14	*Jyotismati Celastrus paniculatus*	*Katu tikta*	*Tiksna*	*Ushna*	*Katu*	*Kaphavata hara Medya*	Anti-inflammatory Antiepileptic Analgesic
15	*Nata Valeriana wallichii*	*Katu Tikta Kashaya*	*Laghu Snigda*	*Ushna*	*Katu*	*Tridoshahara Vishagna Kustagna*	Anti-inflammatory Antispasmodic Antimicrobial Antioxidant Cytoprotective
16	*Kusta Saussurea lappa*	*Katu Tikta Madhura*	*Laghu Ruksha Tiksna*	*Ushna*	*Katu*	*Kaphavatahara Vishagna Shotahara Kantikara*	Hypolipida Emic Antiseptic Antibacterial Insecticidal Anti-inflammatory

17	*Shweta girikarnika* *Clitoria perneternatea*	*Katu* *Tikta* *Kashaya*	*Laghu* *Ruksha*	*Sheeta*	*Katu*	*Tridoshahar*	Anti-inflammatory Antimicrobial Anticarcinogenic
18	*Madhu*	*Madhura* *Anurasa* *Kashaya*	*Laghu* *Ruksha*	*Ushna*	*Madhura*	*Kaphapittahar a* *Lekhana*	
19	*Gopitta*					*Vishahara*	

DISCUSSION

Kshara agada mentioned in Sushruta Samhita contains 78 dravya most of which are tikta katu kashaya rasa, ushna veerya, katu vipaka, lekhana, vishagna,krimigna, kusthgna,bhedana karma. With indication such as vataja gulma, shoola, all types of poison, asmari, arsha etc

Gandhahasti agada mentioned in charaka samhita contains 21 dravya most of which are katu, tikta rasa ushna veerya, katu vipaka, vishgna, balya,shotahara, gulmagna vranropana karama.With indication such as Arbuda, Apasmara, visuchika, damstra visha etc

Mahagandhahasti agada mentioned in charaka samhita contains 55 dravya most of which are katu, tikta, kashaya rasa, Ushna veerya and katu vipaka, vishagna,kustagna,krimigna,shotagna karma. with indication such as kandu,timira,arbuda,pama all types of visha etc

Amrita ghrita mentioned in charaka samhita contains 48 dravya most of which are of tikta, katu.kashya rasa,ushna veerya, katu vipaka, kusthagna,krimigna, shulagna,rasayana, vishagna karma. With indication such as vishapaham, garavisha,krimi,gulma etc

Lodradi agada mentioned in Astanga sangraha contains 19 dravya most of which are of katu, kashaya rasa, Ushna veerya,katu vipaka, varnya,rasayana,kustagna,vishagna karma.With indication such as sarpa visha, bhutagraha, gulma, ajirna,visuchika etc.

CONCLUSION

From the above discussion we can conclude that most of the drugs have anticancer, antioxidant, anticarcinogenic, anti-inflammatory, analgesic, hepatoprotective, antimicrobial and immunomodulatory action. So these formulations have a potential in managing cancer.

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GERIATRIC TOXICOLOGY AND ROLE OF AGADTANTRA

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Abstract – Geriatrics or geriatric medicine is a specialty that focuses on health care of elderly people. An elderly person is more likely to die of a drug dose which would be relatively safe in a younger person, and the reasons for this are numerous. Due to derangement in physiological processes in organs makes the elderly develop some kinds of diseases and have more complications from mild problems. The bad habits like Smoking, drinking alcohol, consumption of drugs, taking over the counter drugs definitely diminishes the health. Agadtantra classics mentioned many more agad kalpas which are useful in geriatric diseases for cure and care. This paper highlights the relationship between Geriatric toxicology and Role of Agadtantra.

Introduction

Geriatrics refers to medical care for older adults, an age group that is not easy to define precisely. The term older is more preferably used in society. Generally the age over 65 is considered as older but most of people do not require geriatric expertise until age 70, 75. The term geriatrics comes from the Greek-‘ geron’ meaning old man and iatros meaning "healer". Geriatrics or geriatric medicine is a specialty that focuses on health care of elderly people. It aims to promote health by preventing and treating diseases and disabilities in older adults (1). Geriatrics is sometimes called medical gerontology. Gerontology is the study of aging, including biologic, sociologic, and psychologic changes.

Geriatric toxicology - Toxicological changes associated with old age can be summarized as "everything is slower and more fragile". An elderly person is more likely to die of a drug dose which would be relatively safe in a younger person, and the reasons for this are numerous. Apart for impaired pharmacokinetics and age-related pharmacodynamic susceptibility to toxic effects, there is the real possibility that the overdose will be missed (obscured by other pathology) or dismissed as trivial (2).

Importance of Geriatric toxicology - Due to derangement in physiological processes in organs makes the elderly develop some kinds of diseases and have more complications from mild problems. Liver mass and hepatic blood flow is diminished so tissues are less metabolically active and drugs with a high hepatic extraction ratio decreases in systemic clearance. Renal tissues are also impaired so there is decreased clearance of water soluble drugs. Increased risk of nephrotoxicity from the medicines; so Implementing and organizing education on geriatric toxicology with the subtitle of drug safety in the elderly is utmost important.

Ayurved is ancient science of life. It has divided into eight main branches Agadtantra is one of them. Agadtantra is the branch of Ashtang ayurved which deals with signs symptoms and

treatment of poisoning resulting from snake, insect, spider, rat and other animals; along with the treatment of different poisons including combination poisons (gara visha).

The bad habits like Smoking, drinking alcohol, consumption of drugs, taking over the counter drugs definitely diminishes the health. There is great risk for medication-related problems as a result of age-related physiological changes, the presence of multiple chronic diseases and conditions, and the types and numbers of prescription and non prescription medications they consume. Medication-related problems have received international attention. In the US, as many as 200,000 people may die of medication-related problems each year(3).

Sequence of Ashtang –If we observe the sequence of ashtang, As per Vagbhatacharya, the branch geriatrics (Jara) is described later than the agadtantra (A.H.S.1/5).

The diseases of geriatrics – Almost every system of body shows changes of old age, most **common diseases are –**

1. Cardiac Diseases -chronic ischemic heart disease, congestive heart failure, and arrhythmia. Ischemic heart disease, Cardiomyopathy etc.
2. Cancer - Cancer is the second leading cause of death in older adults.
3. Diabetes Mellitus
4. Osteoarthritis, Osteoporosis.
5. Urologic Changes - The urinary bladder is often not sterile in older adults but rather is colonized with bacteria not causing infection.
6. Sensory Changes- cataract, hearing loss etc.
7. Psycological changes –dementia, depression, etc.

Cardiac disorders such as coronary heart disease, including myocardial infarction, heart failure, cardiomyopathy, and arrhythmias such as atrial fibrillation, are common and are a major cause of mortality in elderly people.

Following are the terms and medications used in agadtantra are useful in geriatric diseases. Aachaya Sushrutachrya explains the term for protection of heart is Hridayavaran.

Hridayavaran – It should be done daily in the company of friends, by drinking medicines such as Ajeya ghrit, Amruta ghrita, ghee, milk, curd, honey and cold water. Meat of peacock, mongoose, iguana,spotted deer, or antelop, or soup of their meat should be consumed (SK1/79-81.)

Aacharya Charak also explained about Hridayavaran that the patient should be instantaneously given emetic therapy by the physician. He should be given fine powder of copper (impure) along with honey for cleansing the heart. After cleansing the heart, the patient should be given one sana of gold powder. This gold bhasma immediately counteract all the poisons including garas (artificial poison) (C.C.23/238/239). This is the area of research that can Hridayavaran is helpful in cardiomyopathies or any cardiac diseases of old age?

Ajey Ghrit (Sk1/47-49) – Yashtimadhu, Tagar, kushtha, Bhadra daru, Harenu, punnag, elavalu, nagapushpa, utpal,sita, vidang, Chandana,patra, priyangu, dhyamaka, two Haridra, two Brihati, two Sariva, Sthira, and Saha. All these are made in to decoction, and paste and ghee cooked with all. As it previously mentioned in Hridayavarana – it helps to protect the heart.

Dushivishari Agad (SK2/51-52)– Pippali, Dhyamaka, Jatamamsi, shabara, Lodhra, Kevatimodha, Suvarchika, Suksma ela, toya, suvarn Gairika. This should be made in to powder or decoction and administered mixed with honey.

This Dushivishari agad is helpful in treating the complications such as fever, burning sensation, hiccup, flatulence, loss of semen, oedema, diarrhea, fainting, heart diseases, enlargement of abdomen, Insanity, rigors.

Sanjivan agad(S k5/73-74) – Laksha, Harenu, Jatamamsi, Priyangu, two Shigru, Yashtimadhu, Prathvika, Rajani, are all made in to powdermixed with ghee and honeyfilled in to cowshorn covered with lid as mentioned and preserved. As its name Sanjivan Agad it restores life.

Kalyanak Sarpi (SK6/8-10) – Vidang, Triphala, Danti, Devdaru, Harenu, Talishpatra, Manjishta, Keshar, Utpal, Padmaksha, Dadim, Chameli pushpa, two Haridra, two Sariva, Shaliparni, Prushniparni, Priyangu, Tagar, Kushtha, Two Bruhati, Elavaluk, Chandan, Indrayan are made into decoction and paste ghee also added This is Kalyanak Ghrita.

It is helpful to destroys poison, cures possession by evil spirit, epilepsy, anaemia, homicidal poison, dyspnea, poor digestive power, fever, cough.

Amrita Ghrita (SK6/10-12) - Seeds of Apamarga, shirish, , two shweta, and Kakmachi each one masa (500mg) macerated in cows urine and ghee cooked with it. This is famous Amrita Ghrita; it is best to mitigate poison and to restore even dead man to life.

MahaSugandhi agad (SK6/ 14-27) – This is the chief of all Agadas. It bestows the wearied person bestows with brilliance, radiance though he is in the centre of enemies.

Ksharagad (C C 23/101-104)- Ksharagad is useful in all types of poisoning, gulma, skin diseases, piles, fistula in ano, oedema, epilepsy, parasitic infections,affliction by evil spirit anaemia suppression of the power of digestioncough and insanity. It maintains homeostasis of the body and longevity of life.

Mrut Sanjivan agad (CC23/54-60) - As is cures all types of poisoning, make a person victorius, revives a person who is apparently dead because of poisoning and cures fever, it promotes auspiciousness, nourishment, and longevity. It prevents untimely death.

Maha-gandh-hasti Agad (CC 23/77-94) – It should be taken internally in the form of drink or use as collyrium in the eyes. If any person facing death he also regains life and lives till the end of his lspan of life, free from any disease.

Murvadi Agad (A.SU 40/120) – Murva, Amruta, Nata, Kana, patoli, chavya, Chitrak, Vacha, musta, and Vidang mad in to powder should be consumed mixed with buttermilk, warm water, whey or any sour liquid by the patient whose digestive power is affected by poison. Many research papers are coming forword with effect in carcinoma treatment.

Care taken during Agad paan –

Mixture of agadas (Anti poisonous medicine) when administered to a person having no problem , produces discomfort or diseases only. By treating the person without knowing the presence of poison in his body the doctor will kill the person (SK8/77-79).

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COSMETICS AS AN ACCELERATING FACTOR FOR AGEING WITH REFERENCE TO PREMATURE SKIN AGEING.

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Abstract

Aging is the accumulated molecular or cellular damage over the time. Skin plays very important role in health of humans being largest sensory organ, body's first line of defence\ against infectious organisms and physical harm. Aging of skin affects controlling of body temperature and causes elderly appearance of a person. Thus, early aging of skin of a human being definitely affects its health and social interface. Cosmetics are chemical or herbal molecules which are beautifying or age defying, helping to hide the signs of aging or scars, wrinkles make skin to appear attractive. However, many ingredients of cosmetics when used in excess are accelerating the aging process. Irony is superfluous use of anti-aging products accelerates the aging process.

Alpha hydroxyl acids, Beta hydroxyl acids, Sodium perborate, Diethanolamine, Colour additives, Fragrance, Latex, Parabens, PFAS and Phthalates, Mercury, Lead are the commonly used ingredients of cosmetics.

Toxicity and carcinogenicity of some ingredients like Diethanolamine, Mercury and Lead is also another snag.

Introduction

What is a cosmetic? As per Drug and Cosmetics Act, 1940, any article intended to be rubbed, poured, sprinkled or sprayed on, or introduced into, or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness or altering the appearance and includes any article intended for use as a component of cosmetic.
(1)

Role of cosmetics in our life

Cosmetics have become integral part of one’s life in modern days. Cosmetic items are used at every step of people’s lives starting from aromatic sprays, skin whiteners and anti-aging products to uplifting skins and body part. Everyone uses, at least, one or other cosmetic article every day.

To become confident one needs to look good, as is being said commonly and to look good they rely on cosmetics. Thus it has become inevitable part of everyone’s daily life.

Cosmetics market status (2)

The Indian cosmetics industry is continuously witnessing firm growth year on year. As per Goldstein Market Intelligence, Indian cosmetics market is valued at nearly Rs. 836.93 Crore (USD 11.16 billion) in 2017 and is anticipated to grow at a CAGR (Compound annual growth rate) of 5.91% during the forecast period 2017-2030. Furthermore, it is estimated that annual retail sale of cosmetics & other personal care products is growing in the range of 15-20% annually, thus placing the domestic demand in India as one of the fastest growing across the world. Over the past 5 years total demand has grew by 60 %.(2) Being a major sensory organ, skin is the body's first line of defence against infectious organisms and physical harm, and it

plays a very important role in controlling body temperature. Slowing down the ageing processes of the skin will therefore not only help us to keep more youthful appearance but will most likely have beneficial effects for the whole organism(3).

What is aging of Skin?

The micro-inflammatory model of skin ageing is based on the observation that all causes that are known to accelerate skin ageing share a common feature: the ability to trigger the\ synthesis of intercellular adhesion molecule-1 (ICAM-1) in endothelial cells. ICAM is immunoglobulin which is important for inflammation and immune response. ICAM-1 binds to the proteins which reduces the space for extra cellular matrix (ECM). These causes are as diverse as infections, tractions, cigarette smoke, ultraviolet radiation, trauma, hormonal imbalance, electromagnetic fields, ethanol ingestion, psychological stress, anoxia and advanced glycation end-products. Most scientists in the field now accept that everything that provokes the synthesis of ICAM-1 can be considered a factor for skin ageing. (4)

Elastin and collagen below the dermis layer of skin plays important role as anti sagging of skin ultimately preventing the wrinkling of skin. Although various factors damaging these tissues have been identified, including carcinogenesis, ultraviolet exposure, and mechanical stretching of skin. Also Extra Cellular Matrix is responsible to prevent sagging of skin. (5)

Common ingredients of commonly used cosmetics

Compact powder- starch, calcium carbonate, Magnesium stearate, titanium dioxide, silica, vinyl dimethicone

Eye liner/Kajal- Lanolin, castor oil, wax, and colour (should be activated charcoal, permitted minerals) Skin toner- salicylic acid, witch hazel, and alpha-hydroxy acids (AHAs).

For dry skin, toners with glycerin or hyaluronic acid are added

Lip stick- wax, oil, alcohol, and pigment. The wax used usually involves some combination of three types—beeswax, candelilla wax, or the more expensive carnauba.

Cause/causes Synthesis of
ICAM-1 binds
to proteins
Reduced space
for ECM
Skin Aging

Eye shadow- Base fillers, binders, slip and preservatives. In order to make eye shadow, there must be a balance between the fillers and binders. Base fillers are usually minerals such as mica, talc or kaolin clay, which add bulk and texture to eye shadow.

Skin whitening products - Hydroquinone, Retinoid, Kojic acid, Arbutin, Azeilic acid, Glutathione.

Mascara- carbon black or iron oxide pigment to darken lashes; a polymer to form a film that coats lashes; a preservative; and thickening waxes or oils such as lanolin, mineral oil,

paraffin, petrolatum, castor oil, carnauba wax, and candelill.

Action and effects of ingredients accelerating Skin Aging

Lanolin - (Eye liner, mascara, greasing agents) also called as wool wax, wax grease, woolyolk secreted by sebaceous glands of wool bearing animals. The results showed that lanolin membranes presented a strong diminution of permeability compared to most artificial membranes, leading to a very similar permeability to that of skin. The artificial membranes showed a diminution of transepidermal water loss and permeability of compounds compared with membranes alone (6).

Acids – (found in cleansers, masks, serums, scrub, peels, toners) AHA(alpha hydroxyl acid),BHA(Beta hydroxyl acid) ,glycolic acids, citric acid, tartaric acid, lactic acid, mandalic acid..Exfoliates the dead skin. When this exfoliated skin exposed to sunlight. The ultraviolet rays from the sun penetrate into the skin. There, they damage the elastic fibres that keep skin firm, allowing wrinkles to develop. Sunlight is also responsible for age spots or "liver spots" on the hands, face, and other sun-exposed areas (7).

Ozone (8) - (Content of toner) chronic contacts with o3 can be deleterious to skin. It causes a progressive depletion of antioxidant content in the stratum corneum and this can then lead to a cascade of effects resulting in an active cellular response in the deeper layers of the skin. Kozic acids (9) - (Whitening cream, serum, soaps) prevents melanin production which is the protect skin from sunburn. Melanin reduction makes the skin thin, vulnerable to damage by UV rays accelerating ageing.

Heavy metals (Mercury, lead, cadmium, zinc, in some commercial cosmetic beauty products lipsticks, lip glosses, eye shadows, and henna hair dye.) The present study of metals (lead, cobalt, nickel, chromium and arsenic) in eye shadows in 88 colours of 25 brands and 49 products provides a basis for assessing the safety of eye shadow. 66 out of 88 (75%) of the colours contained more than 5 ppm of at least one of the elements, and all 49 products contained more than one 1 ppm of at least 1 of the elements. High exposure to cadmium was linked to shorter telomeres, "bits of DNA that act as caps" on chromosomes to help stabilize genes. However the metal has been associated with inflammation, oxidative stress and the inhibiting of DNA repair—all of which could promote telomere shortening. (11) Inhibition of DNA repairs responsible for aging.

Hydrogen peroxide- it is highly reactive and unstable. Therefore excess ROS (reactive oxygen species) in the body causes damage to proteins, lipids & DNA, the major constituent of cell, leading to oxidative stress. (12)

Wax - Candelilla wax is probably the most frequently used wax, when formulators look for a beeswax substitute. Wax represents an important group of ingredients used for the implementation of cosmetic and decorative products. From a chemical point of view, waxes are complex mixtures of hydrocarbons and fatty acids combined with esters. They have a long-lasting consistency and are highly resistant to moisture, oxidation and microbial attack (13)

.But it may restrict the sweating clogging the pores. When the wax comes into contact with the eyes, it causes the oil glands to become clogged. This can lead to irritation, and in some cases, dry eye disease. Dry Eye Syndrome can vary in its symptoms ranging from itchy or scratchy

eyes to something more serious like a burning sensation or blurry vision which may cause early aging of eyes.

Vinyl dimethicone- These ingredients function mostly as absorbents, bulking agents, film formers, hair-conditioning agents, emollient skin-conditioning agents, slip modifiers, surface modifiers, and no aqueous viscosity-increasing agents. It prevents water loss by forming a barrier on the skin. Like most silicone materials, dimethicone has a unique fluidity that makes it easily spreadable and, when applied to the skin, gives products a smooth and silky feel. It can also help fill in fine lines/wrinkles on the face, giving it a temporary "plump" look. (14)

By preventing water loss it clog the pores. Pores trap and hold dirt and oil, causing a multitude of issues such as discoloration, acne, and premature wrinkles.

Result and discussionAny cosmetic article that is clogging the skin pores, damaging elastin and collagen fibers, carcinogenic and majorly decreasing the melanocyts is accelerating aging; such as skin coating waxes, Skin conditioners, emollients. Acids, Ozone, Hydrogen peroxide make the skin vulnerable to sunlight exposure which causes damage to elastin and collagen fibers increasing the formation of wrinkles. Contents like heavy metals are inhibiting the DNA repair of skin causing irreversible damage. Many of the cosmetic constituents are substantially carcinogenic. Superfluous use of cosmetics is accelerating Aging.

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PREVENTIVE ROLE OF KALYANAKA GHRITA IN GERIATRICS- A REVIEW

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Guide – Dr.Rajendra Lambat Govt.Ayu College, Nagpur

ABSTRACT

Glow is the essence of beauty – Ester Lauder.

It's true. But this glow should radiate from your soul itself which can be only achieved by balanced Dosha, Dhatu, Mala. Ayurveda focuses not only on physical appearance but also mental and emotional characteristics. Geriatrics being one of the degenerative phase in every creature's life cannot be terminated but can be prevented or slowed down. Nowadays, cosmetics is used on a large scale to hide all ageing features which is temporary and for sure can cost a lot and has tremendous side effects, where Ayurveda is definitely a saviour. There are many Rasayana and Agada that work on Geriatrics where I feel Kalyanaka Ghrita being easily available, cost effective and providing features like Rasayana, Deepana,Vishaghna, Medhya, Alakshmighna,Vrushya can work best in preventing and curing Geriatrics.

Key words- Ayurveda, Geriatrics, Cosmetics, Kalyanaka Ghrita

INTRODUCTION

Geriatrics refers to medical care for older adults, ann age group that is not easy to define precisely. Age > 65 is the age often used, but most people do not need geriatrics expertise in their care until age 70, 75 0r even 80. (1)

Ageing can be defined as "that which happens to our bodies over time". It is ultimately combination of physiological changes in our bodies and environmental factors we are exposed to which is beyond our control. Ageing can be seen externally but there are many internal causes which leads to hair loss, loosening of skin, wasting of muscles, diminision of vision etc. (2)

Types of Ageing:

1. Cellular ageing- At a particular age the replication of cell doesnot occur as the cell loses its functional characteristics leading to accumulation of senescent cells causing cellular ageing. The more damage done to cells by free racicals and environmental factors, the more cells need to replicate. And more rapidly ageing occurs.
2. Harmonal Ageing- Hormones play an important role in metabolism of body where overtime this hormonal functions begin to diminish, leading to changes in skin, muscles, bone, density and sex drive.

3. Accumalative Damage- Exposure to toxins, UV radiation, unhealthy foods and pollution can cause DNA Damage which deteriorates body's ability to repair itself promoting rapid ageing.
4. Metabolic Ageing- The process of metabolism which is essential can cause progressive damage to cells known as metabolic ageing. But this ageing cannot be terminated but can be taken care of using ayurvedic formulation which is known to be as Agada.

Kalyanaka Grhita

Kalyanaka Ghrita consists of 30 ingerdients having variety of properties which can easily help in taking care of geriatrics.

Indications [3]

It is said to be beneficial in personality disorders, curing unmada, cough, epilepsy, diseases caused by sinful deeds, anaemia, itching, poison, consumption, delusion, Diabetes mellitus, vishavikara , fever, scanty semen volume, infertility, in whom the mind is affected by gods, those having poor intelligentia, stammering speech, who desire good memory, who have poor digestive power. It bestows strength, auspiciousness, long life (Ayu), complexion Alakshmighna), fortune and nourishment (Bala vardhana) . This is best for Pumsavana (treatment modality to get male progeny.

Rasa Panchaka of Herbs [4]

S. No.	Drug (Sanskrit name)	*Rasa*	*Guna*	*Virya*	*Vipaka*	*Karma*
1	*Haritaki*	*Madhura, Amla, Katu, Tikta, Kashaya*	*Laghu, Ruksha Sara*	*Ushna*	*Madhura*	*Deepani, Medhya, Rasayana, Brimhani, Anulomani, Tridoshahara*
2	*Amalaki*	*Madhura, Amla, Katu, Tikta, Kashaya*	*Laghu, Ruksha Sara*	*Sheeta*	*Madhura*	*Rasayana Tridoshahara*
3	*Vibhitaki*	*Kashaya*	*Laghu Ruksha, Sara*	*Ushna*	*Madhura*	*Kaphapittahara*
4	*Vishala*	*Tikta*	*Laghu Sara*	*Ushna*	*Katu*	*Pitta kapha hara*
5	*Bhadraila*	*Katu*	*Laghu Ushna*	*Ushna*	*Katu*	*Deepana Kapha pitta hara*
6	*Devadaru*	*Tikta*	*Laghu Snigdha*	*Ushna*	*Katu*	*Kapha pitta hara*
7	*Elavaluka*	*Kashaya*	*Laghu*	*Seetha*	*katu*	*Kapha pitta hara*

8	*Sariba*	*Madhura*	*Snigdha guru*	*Seetha*	*Madhura*	*Deepana, Tridoshahara*
9	*Krishna Sariba*	*Madhura*	*Snigdha guru*	*Seetha*	*Madhura*	*Deepana, Tridoshahara*
10	*Haridra*	*Katu tikta*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kapha pitta hara*
11	*Daruharidra*	*Katu tikta*	*Laghu Ruksha*	*Ushna*	*Katu*	*Kapha pitta hara*
12	*Prishniparni*	*Madhura*	*Laghu Sara*	*Ushna*	*Madhura*	*Tridoshahara*
13	*Shalaparni*	*Tikta Madhura*	*Guru*	*Ushna*	*Madhura*	*Tridoshahara, Rasayana, Brimhana*
14	*Priyangu*	*Tikta kashaya*	*Guru Ruksha*	*Seetha*	*Katu*	*Vatapittahara, Bhranti, Moha*
15	*Nata*	*Madhura*	*Laghu Snigdha*	*Ushna*	*Katu*	*Tridoshahara*
16	*Brihati*	*Katu tikta*	*Laghu*	*Ushna*	*Katu*	*Kapha vatahara*
17	*Kushta*	*Katu madhura tikta*	*Laghu*	*Ushna*	*Katu*	*Vatakaphahara*
18	*Manjishta*	*Madhura tikta kashaya*	*Guru*	*Ushna*	*Katu*	*Kapharaktahara*
19	*Nagakesara*	*Kashaya*	*Laghu ruksha*	*Ushna*	*Katu*	*Kaphapitta hara*
20	*Dadima*	*Madhura Kashaya*	*Laghu Snigdha*	*Ushna*	*Amla*	*Tridoshahara,Tarpana, Medhavaham*
21	*Vella*	*Katu*	*Teekshna ruksha laghu*	*Ushna*	*Katu*	*Deepana, Kapha vata hara*
22	*Talisapatra*	*Tikta madhura*	*Laghu teekshna*	*Ushna*	*Katu*	*Kapha vata hara, Deepana*
23	*Ela*	*Katu*	*Laghu*	*Seetha*	*Madhura*	*Vata hara*
24	*Malatimukula*	*Tikta kashaya*	*Laghu*	*Ushna*	*Katu*	*Anila rakta hara*
25	*Utpala*	*Madhura*	*Guru ruksha*	*Seetha*	*Madhura*	*Kaphapittahara*
26	*Danti*	*Katu*	*Laghu Sara teekshna*	*Ushna*	*Katu*	*Deepan, Pittakaphahara*
27	*Padmaka*	*Kashaya tikta*	*Laghu*	*Seetha*	*Katu*	*Kapha pitta hara*
28	*Hima*	*Tikta*	*Ruksha laghu*	*Seetha*	*Katu*	*Kapha pitta hara*

All these qualities contribute in protecting one from geriatrics.

Haritaki, Sarivadaya, Ela, have Deepana, and Amadoshanashak properties so that it regulates Jatharagni, Dhatvagni and Bhutagni which corrects metabolism at cellular level, results in proper formation of Dhatus and Upadhatus and leads to Strotoshodhan by removing Ama. Haritaki, Amalaki, Vibhitaki, Visala, Danti has Sara Guna and Virechak action so that they regulate Doshas by Samshodhana karma. Thus Samshodhana karma clears the Strotas and regulates function of Tridosha. And tridosha maintenance is only important in this case

CONCLUSION

Geriatrics is inevitable. But it can be handled in a proper way using ayurvedic formulation. Among all the Snigdha substances, Ghrita is considered as best in Ayurveda [(5)]. It is one of the Nitya Rasayanas mentioned in Ayurveda [(6)]. It improves the digestive fire, improves eyesight, intelligence, memory, vitalizes the body and gives luster. It improves semen and Ojus, which keeps any individual strong enough. After analyzing this medicine based on nidan panachaka we can come to conclusion that there is a mixture of rasayana, tridosha hara, deepana, pachana, medhya, kapha pitta hara which implies to be used in treating and caring of geriatrics.

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COSMETICS AS AN ACCELERATING FACTOR FOR AGEING

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ABSTRACT: Today's generation is more towards the westernised life, excessive use of cosmetic product for the application in skin. They used to clean and cleanse the skin, to increase the glow enhancement and enlightens the skin tone. A large range of cosmetic including skin lotion, body washes, moisturisers, skin cream, nail polish, deodorants, soaps, shampoos and many other products used in daily need now a days. Ayurveda described the concept of *Dushi visha* (Cumulative toxicity) which is produced by excess use of chemical and metal in cosmetic products. Bioaccumulation or cumulative toxicity occurs when an organism absorbs toxic substance for prolong time. Thus, the longer biological half-life of the substance and greater the risk of chronic poisoning, even if environmental levels of the toxin are not very high. They collectively produce the cumulative effects on body in the form of premature ageing due to excess release of free radicles.

If the body does not have enough antioxidants, it produces free radical and oxidative stress. Oxidative stress has been associated with developmental delay and neurological disorders, as well as many other disease processes.

Skin ageing depend on some intrinsic factors like genetic, cellular metabolism, hormone, metabolic process and extrinsic factors such as chronic light exposure, pollution, ionizing radiation, chemicals, toxins. These factors are work together as cumulative, physiological and progressive changes in skin layers especially in sun exposed skin area. It includes finely wrinkled, dry and thickened epidermis, mottled discoloration, deep wrinkles, loss of lustre, increase dullness, gradual loss of skin elasticity associated with degenerative disorders and malignant neoplasm. For the prevention of ageing factors, preference of various method of revitalizing, rejuvenation, augmentation, restoration of each skin layer in the form of Antioxidant therapy. So, it is necessary to stop the degradation of the skin primary structural constituents such as collagen, elastin, suitably they prevent from the wrinkling of skin. Antioxidants preferably prevents or neutralized the free radicle formation. Free radicals are produced during the oxidation process and exposure to the toxins which present in environmental pollution, prolong use of cosmetics, tobacco smokes, cigarette smokes etc. It

kills the cellular level of tissue and damage DNA (de-oxy-ribonucleic acid). Antioxidants are in non- enzymatic and enzymatic forms- Non-enzymatic form are Glutathione, nutritional factors, vitamins and phenol etc. and enzymatic form are superoxide dismutase (SOD), Glutathione peroxidase (GSHPx), flavonoid and catalase etc. In this most common and easily available nutritional antioxidant is important in which vitamin C, E, B_3, carotene and their combinations are more useful. Because of their ability to penetrate the skin through their small molecular weight. In Ayurveda the essence of all the dhatus is known as Oja, it is the very best material is soft, possesses the qualities of water, is pure, slightly reddish, with yellowish tinge, it is the first essential element of the embryo, the essence of the rasa dhatu of the foetus and gets localised in its heart very early. Even though residing in the heart, it is circulating everywhere and helps the life activities. The treatment for such condition is the use of rejuvenating (Rasayana or Vrishya) drugs, milk, meat, soup and some herbal drugs that help to prevent from the free radicles to protect the aging process in the form of Chaksushya(drugs help to protects the vision), Medhya(Drug which help to protect the mental condition), Varniya (Drug help to increases the skin glow). Increased of ojas gives the body good growth, nourishment and improvement of strength.

KEYWORDS: *Ayurveda*, Cosmetic, Oxidative stress, *Dushi visha*, Cumulative toxicity, Free radicles

INTRODUCTION: *Acharyas sushruta* mentioned in his text book *Sushruta Samhita kalp sthana*, that a part of *Sthavar* (inanimate), *jangama* (Animate) and *Kritrima* (Artificial) poison, which accumulate and cannot be excreted from body completely, due to its chronic and cumulative nature or become less potent after applying cosmetics, it accumulates in the body for a prolong period and vitiating body slowly is called as *Dushivisha*. The *veerya* of *dushivisha* being less, it does not show any immediate fatality.

Dushivisha[1] become aggravated often by habitat, season (rainy), food (polluted food) and day sleep and it vitiates the dhatus (tissue). Present use of cosmetic products, food habits, life style and mental attitude are entirely different from past conditions. In past time females used natural cosmetic product which is properly self- made herbal products and each product having no preservatives and they are chemical free. The basic essentials of life i.e. air, food and water are polluted and hazard having a gloomy picture for the coming generation. Many skin diseases are caused by the effect of prolong use of cosmetic such as, Allergic contact dermatitis or Eczema, Acne vulgaris, malignancy etc. A study carried out by new Delhi based on NGO centre for science and environment (CSE), on different fairness creams, it contained large amount of

mercury, lead, nickel and chromium are main constituents. In these study 73 fairness creams tested, CSE found presence of mercury in over 40 percent. The drugs cosmetic act prohibits the use of mercury in cosmetic as it causes skin and kidney ailments. Chromium too may cause cancer. The high level of steroids in these products can cause redness and thinning of skin, acne, skin dryness and in some cases facial hair also seen in women.[2]

In the chronic stage, scaling, lichenification (Thick and leathery skin) and excoriation predominates in face, neck and hands are the most common body parts involved. forehead and ears are commonly affected by hair dyes and shampoos, ears are susceptible to metals from earing, eyelids are particularly affected by airborne allergens and cheeks and lips are prone to react to facial cosmetics. [3]

CONCEPT OF FREE RADICALS IN AGEING PROCESS:

It is a highly unstable oxygen molecules, they give the alteration of biochemical molecules, and destroys the cells. free radicals are continuously created from the millions of cells that continuously destroyed by the metabolic activities of the body and they are differently essential to the life of a person. They produced when body defence system activated against the killing germs that become infected from the environmental infections but the main problem is increased their number and over production of these radicals.

Excess production of the free radical can be defended by antioxidant nutrients, enzymes, that damages the cell membranes and DNA cells which can results in carcinoma, ageing effect, wrinkling, greying of hair, hair loss, cancer, Lymphoma and leukaemia etc.

Synthetic Antioxidant such as butylated hydroxytoluene and butylated hydroxy-anisole have recently been reported to be dangerous for human health. Formation of free radicals that delayed or alter the lipids, protein and DNA that triggered to increase the number of diseases.[4] (V.Lobo, A.patill et.al)

FACTORS RESPONSIBLE FOR FREE RADICAL FORMATION [5]

Body has the continuous and increased production of free radical in body. The basic causes are-

1) **Immune system**- Immune system of the cells intentionally create the oxy-radical and ROS (reactive oxygen species) such as weapons.
2) **Energy production**- During the cell production, they generate continuous and high amount of oxy- radical and free radicals as a toxic waste in our body. They also

increased the production of different free radicals. though, even a single cell should be producing the different type of free radicals.

3) **General factors**- Ageing, Metabolism, Stress, Environment.
4) **External factors**- Cosmetics products, Perfumes, Pesticides, Insecticides that will increases the number of free radicals.
5) **Toxins-** Carbon-dioxides, Carbon-tetra-chloride, Paraquat, Benzo-pyridine

CUMMULATICE TOXICITY IN CURRENT ERA:

BIOACCUMULATION OR CUMMULATIVE TOXICITY: - Bioaccumulation occurs when an organism absorbs a toxic substance are used for a prolong time. Thus, the longer biological half-life of the substance and greater the risk of chronic poisoning, even if environmental levels of the toxin are not very high.

USE OF COSMETICS- A large range of cosmetic including skin lotion, body washes, moisturisers, skin cream, nail polish, deodorants, soaps, shampoos and many other products used in daily needs now a days. They collectively produce the cumulative effects on body in the form of premature ageing due to excess release of free radicles. It may associate with Premature greying of hair, wrinkling of skin, excess hair loss, development of skin allergies, acne, contact dermatitis, carcinomas etc.

COMMON COSMETIC, THEIR CHEMICALS AND ADVERSE EFFECTS ON BODY:[6]

COSMETIC NAME	**NAME OF TOXIC CHEMICALS**	**ADVERSE EFFECTS ON BODY**
Skin lightening agent	Hydroquinone (HQ)	• Ochronosis (Progressive darkening of the area in which the cream containing high amount of HQ. • Mutagenicity
Black henna	Combination of red henna with p-phenylene-diamine (PPD)	• Blister formation, • Surface oozing, • Swelling and erythematous rashes on skin.

Sunscreen products	Benzo-phenone, dibenzoyl methane, para-amino benzoic acid (PABA) and cinnamates	• Photo-allergic dermatitis, •Headache, • Dizziness, • Fatigue, • Irritation on eyes, nose and throat.
Shampoos or hair bleaching agent	Hydrogen peroxide solution, Ammonium persulfate	• Allergic contact reactions, •Dryness of hair, • Making hair liable to damage.
Moisturizers, lipsticks (As preservatives)	BHA (butylated hydroxyl anisole), BHT (butylated hydroxyl toluene)	• Carcinogenic effects, • Endocrine disruptors •Interfere with hormonal functions.
Shampoos, Soaps, cleansers, hair dyes, cosmetics	DEA (Diethanolamine) Use to Form creamy texture of cream and react with pH adjuster form nitrites	• Skin dryness, • Liver cancer, • Mild to moderate skin and thyroid irritation, • Carcinogenic action
Cosmetic for nails, nail polishes,	Di-butyl phthalate (DBP)	• Developmental defects • Changes in the prostrate and testes and reduce sperm count •Endocrine disrupter • Infertility, • Kidney failure.
Cosmetics and some foods such as strawberries, barley etc.	Parabens (as preservatives)	• Endocrine disruption • Skin ageing • DNA damage
Perfumes	Aromatic compounds, essential oil	• Allergies • Severe headache • Asthma
Moisturizing creams	Polyethylene glycols (PEGs) used as cream thickener or softener	• Cancer • Genotoxicity • Systemic and irritation toxicity

Lotions	Mixture of oil, water, emulsifier products, with polycyclic aromatic hydrocarbon (PAHS), propyl glycol and lanolin Propyl glycol.	• Development of the cancer • Contact dermatitis • Allergic reactions.
Hair smoothing products	Formaldehyde	• Contact dermatitis • Irritation in skin, eyes, nose, throat
Sunscreen	Cinnamates, Salicylates and zinc oxide	• Allergic reaction • Eye irritation
Skin lightening creams	Mercury	• Skin rashes, • Scarring, Skin discolouration • Increase risk of neurotoxicity • Nephrotic syndromes
Body powder	Talc and Amorphous silica	• Lung irritation on inhalation • Females using talc in napkin area, it may increase risk of ovarian cancer.
Kajal, Kohl, Kumkum, Hair dyes	Lead	• Carcinogenic action, • Affects Nervous system • Allergic dermatitis
Skin and hair care products	Sulphates	• Skin irritants, • Endocrine disruptors
Soaps as an anti-drying agent	Glycerine	• Blister formation • Fungal infections
Creams, Moisturizers, Haircare, Shaving products	Parabens	• Skin irritation, • Skin rashes, • Eczema
Hair dyes, Ink of tattoos	Para-phenylene-diamine	• Dermatitis • Allergies

		• Hypersensitivity
Creams and Cosmetics	Imidazolidine, diazolidine urea, formaldehyde for preservation	• Skin sensitivity, • Allergies, • Contact dermatitis
Bodywash, Soaps, Shampoos, Shaving cream	Sodium laurel sulphate	• Eye and skin irritation, • Dryness, • Scaly skin.
Lipstick, Lotions, Hair colouring and Conditioners	Benzyl-dimethyl-stearyl ammonium chloride	• Irritation in skin and eyes. • Allergic contact dermatitis
Perfumes, Nail polish, Soaps, Shampoos, Moisturizers	Phthalates	• Skin rashes, • Liver cancer, • Affects central nervous system

EXCESS PRODUCTION OF FREE RADICLES INVOLVE PATHOGENESIS OF MANY DISEASE INCLUDING [7]-

A) Ageing process
B) Skin disorder such as skin allergies and skin rashes.
C) Infertility
D) Carcinoma
E) Neurogenerative disorder such as Parkinson's disease, Alzheimer's disease, memory loss and depression.
F) Cardiovascular disease like atherosclerosis, ischemic heart disease, trauma.
G) Autoimmune disorder like rheumatoid arthritis.
H) Renal disorder such as glomerulo-nephritis, chronic renal failure, proteinuria.
I) Gastrointestinal disorder like peptic ulcer, inflammatory bowel disease and colitis.

The Centre for science and environment (CSE), were tested 73 cosmetic products, included skin whitening creams, lipsticks, lip balms and antiaging creams, and found chromium in these products, which can cause cancer. In this study 15 out 30 lipsticks tested, in this range of

chromium varies between 0.45 ppm to 17.83 ppm. Nickle in the range of 0.57 ppm to 9.18 ppm was found in 13 out of 30 in these products were found. Nickle is well known to cause skin allergies and cancer.[8]

Arsenic (As), Lead (Pb) and Mercury (Hg) are the most famous among the hazardous substances. Chronic exposure can affect almost all the systems of the body. lead poisoning can occur even at low concentration and may cause neurological damage and adverse effects on other system. Mercury inhibits melanogenesis in melanocytes by inactivating tyrosine, the important catalyst in melanin production thus reducing pigmentation. it also affects central nervous system, gastrointestinal system and develops nephron toxicities. Use of cosmetic is increasing in the society especially among women and teenage girls and now even men also.[9]

Some researchers are found in Boston university, school of medicine (BUSM) studied different type of people, who apply skin lightening creams on daily basis. The researchers surveyed 406 adults with cutaneous hyperpigmentation who had been seen in a US-based dermatology clinic from February 2015 through July 2016. The most common condition leading to use of lightening creams were melasma (brown to grey brown patches) and post-inflammatory hyperpigmentation (PIH).[10]

DEFENSIVE SYSTEM AGAINST FREE RADICALS FORMATION [11]

ANTIOXIDANT: Which are man- made as well as natural that may prevent or delays the damages that found in the cell membranes such as beta-carotene, Lupein, Lycopene, Vitamin A, Vitamin C, and Vitamin E. Fruits and Vegetables are the rich source of Antioxidants when we increased the intake of these fruits and vegetables than they help to prevents the many diseases that presents due to over production of the free radicals. Antioxidants is maintained the aerobic form of formation of free radicals. It provides defensive mechanism against the formation of the free radicals are as follows-

1) ENZYMES- Some enzymes are against the free radical's formation such as superoxide dismutase (SOD), Catalase (CAT), Glutathione etc. it works as to hold the molecules of superoxide ions which hold the molecules of superoxide ions which helps to create the destructive forms of the free radicals to much less reactive form. Those enzymes are works on glutathione system which is presents with in the cell. Other biochemical agents such as uric acid and ceruloplasmin reacts with free radicals which is presents in the intercellular spaces and bloodstream.

2) SELF-REPAIRS- Our body have the system to repair and replace the damaged part and prevents the most of formation of the free radicals that will increase the diseases formations. Most of proteinaceous components in the cells are completely replaced in every few days. These scavenges enzymes breaks and damaged the protein into their component's parts for reformation by the cells.

3) NUTRIENTS- some of the nutrients like carotene, bioflavonoids, vitamin C and Vitamin E etc. are neutralize the oxyradicals and served as the second line defence system. The vitamin C and Vitamin E protects the body from the formation of the free radicals. It acts to neutralizes the free radicals donating one of their own electrons and there ending of electron stealing reaction.

VITAMIN E- The most preventive, fat-soluble antioxidants in the body. It is one of the most defended agents against oxidation and lipid -per -oxidation. Vitamin-E and alpha tocopherol fat soluble vitamin present in nuts, vegetables, Seeds, and fish oil, whole grain (especially wheat grains) and fortified cereals.

VITAMIN C- These are the abundant water-soluble Antioxidants, acts mainly in cellular fluid level. It defends against the free radical's formation and helps to create Vitamin E to more active form. Vitamin C or Ascorbic acid is a soluble vitamin prevent in citrus fruits like tomatoes, lemon, oranges etc.

VITAMIN -A It is precursor of carotene found in some vegetables and fruits like carrot, egg yolk, milk, butter and grains etc.

ANTIOXIDANTS IN AYURVEDA:[12]

The essence of all the dhatus is known as Oja, it is the very best material is soft, possesses the qualities of water, is pure, slightly reddish, with yellowish tinge, it is the first essential element of the embryo, the essence of the rasa dhatu of the foetus and gets localised in its heart very early. Even though residing in the heart, it is circulating everywhere and helps the life activities. It undergoes decreased by anger, environmental toxins, prolong use of cosmetics, beauty products, hunger, worry, grief, physical exertion, and other causes. By such decrease, the person begins to experience fear of loss of life, debility, Ageing effect on the body, wrinkles, premature ageing effects, fine lines, greying of hair, hair loss, too much worry, discomfort, in the sense organs, bad complexion, unstable mind, dryness and emaciation of the body. The treatment for such condition is the use of rejuvenating (Rasayana or Vrishya) drugs, milk, meat,

soup and some herbal drugs that help to prevent from the free radicles to protect the aging process in the form of Chaksushya(drugs help to protects the vision), Medhya(Drug which help to protect the mental condition), Varniya (Drug help to increases the skin glow) . Increased of ojas gives the body good growth, nourishment and improvement of strength. It includes-

PLANTS [13]	**BOTANICAL NAME**	**PROPERTIES**
Guduchi	Tinospora cordifolia	Rasayan, vyashthapana, medhya
Haritaki	Teminalia chebula	Vyasthapana, medhya, chakshusya,
Haridra	Curcuma longa	Antioxidants properties well proved
Amalaki	Emblica officinalis	Chakshusya, Vryshya
Jivanti	Leptadenea reticulata	Rasayani, chakshushya, vryshya
Shatavari	Asparagus racemosus	Rasayani, medhya, vryshya, Sukrastanyakari
Mandukaparni	Centella asiatica	Medhya, Rasayani,
Shalparni	Desmidium gangeticum	Rasayani, Vrishya
Punarnava	Borhavia diffusa	Rasayan, Vrishya
Mulethi	Glycyrrhiza glabra	Chaksushya, Varnya, Keshya
Manjistha	Rubia cordifolia	Swarvarnakrita,

CONCLUSION:

A large range of cosmetic including skin lotion, body washes, moisturisers, skin cream, nail polish, deodorants, soaps, shampoos and many other products used in daily needs now a days. They collectively produce the cumulative effects on body in the form of premature ageing due to excess release of free radicles. It may associate with Premature greying of hair, wrinkling of skin, excess hair loss, development of skin allergies, acne, contact dermatitis, carcinomas etc.

Some fruits, vegetables and herbal drugs having some active components they protection against the Ageing factor and prolong effects of cosmetics. They also provide and slowing the aging process and prevents the formation of the free radicals. Therefore, from the public health perspective they help to decreased the risk of development of the diseases they protect with the antioxidant’s supplements and herbal drugs such as Mulethi, Mukta, Manjistha etc..

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CRITICAL REVIEW OF VISHA DRAVYAS USED IN SODHANA OF RASA DRAVYAS AND ANTI AGING

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ABSTRACT

According to *Rasendra sarasangraha*, *rasaushadhis* are such formulations that give more effective results in its lower dose; it is palatable and will provide immediate results. The faster and quicker action of *rasaaushadhis* makes them different from other formulations. But majority of *rasa dravyas* can perform their karma only after proper *sodhana*. Without proper *sodhana* they cause various diseases and even death. Because of their poisonous nature they are also classified under *Khanija visha*. Hence *sodhana* place a major role in the action of *rasaushadhis.* There are many *visha dravyas* used in the various stages of *sodhana* of *rasaushadhis*. Thus makes the *rasaushadhis* to provide its appreciated results. Ageing, it is a continues process that which ends up in *dhatu kshaya*; *Ashtanga hridaya* explains *rasayana* by the term *Jarachikitsa* and according *Susrutha samhitha*, *Rasayana chikitsa* is mainly meant for *vayasthapana*. According to *Sharangadhara* that which eradicates *jara* and *vyadhi* is considered *Rasayana.* Most of the *rasa dravyas* after proper *sodhana* will act as *Rasayana*. There are few *rasaushadha kalpana* such as *Khalwiya Rasayana*, *Kupipakwa Rasayana*, *Pottali Rasayana*; these *rasa* formulations can perform their *Rasayana karma* only in their *sodhitha avastha*. Hence role of *visha dravya* in the *sodhana* of *rasaushadhi* is an inevitable one.

Keywords: *Visha, Vishadravya, Rasaushadhi, Sodhana, Rasayana*.

INTRODUCTION

The word *Visha* is derived from "*Vish" dhatu* and "*K" pratyaya* and the term *Visha* means to encompass or to get fully pervaded or to get occupied. According to *Acharya Susrutha,* that which generates *vishada* in creatures is considered as *Visha.* It is also said that; the substances which inters in the body and causes vitiation of *rasadi dhatus,* inturn hampering the health or life of a person is termed as *Visha. Sweta, Garala, Kalakuta, Halahala, Neela* these are some the synonyms of visha. There are slight differences in the properties of *visha* explained by *Acharyas*; *Tikshna, ushna, ruksha, vishada, vyavayi, aasu, laghu, vikasi, sukshma* these are the common *gunas* of *visha* , in which *Anirdesya rasa* is mentioned in *Charaka samhitha*, *Apaki* in *Susrutha samhitha* and *Avyatha rasa* and *vishamapaki* in *Ashtanga hridaya.*[1]

There are various types of classifications for *visha* explained by various *acharyas.* According to *Ashtanga hridaya*; *visha* is mainly classified in to *kritrima* and *akritrima visha,* in which *sthavara* and *jangama visha* comes under *akritrima visha* and *gara visha* comes under *kritrima visha*. According to *Charaka samhitha*, *visha* is classified in to *sthavara* and *jangama*. *Susrutha* and *Kashsyapa samhitha* have classified *visha* in to *sthavara, jangama, ktitrima*, in which *Kashyapa samhitha* had explained *dushivisha* and *gara visha* under *kritrima visha*. According to *Rasatarangini, visha* is classified in to *sthavara* and *jangama* and *sthavara visha* is again divided in to *Mahavisha* and *Upavisha*. *Visha dravya* are also classified according to their *adhishtanas,* such as *moola visha, kanda visha, patra visha , dhatu visha* etc in case of *sthavara visha* ; *drishti, nisvasa, damstra, nakha* etc in case on *jangama visha* . [2] *Visha dravya* are those come under this classification possessing the *guna* of *visha*. Many plant, animal, mineral drugs possessing the *visha guna* are classified accordingly in to specific groups.

The word *Rasashaastra* literally means the "Science of Mercury". However, it is a specialized branch of Ayurveda dealing mainly with materials which are known as *'Rasa dravyaas'*. They have the following three characteristic attributes: instant effectiveness, requirement of very small doses and extensive therapeutic utility irrespective of constitutional variation. *'Rasashaastra'* can be defined as a science of study of mineral and metallic substances with respect to their therapeutic utility including processing of these substances to prepare a drug. [3] According to *Rasapaddati,* treatments are of three types such as *Daivi, Manushi* and *Asuri*. In which the treatment carried out with *rasa dravyas* are called as *Daivi*

chikitsa. This shows the importance of *rasaushadhis*. Like wise *Rasendra sarasangraha* explains *rasaushadhis* as such formulations that give more effective results in its lower dose; it is palatable and will provide immediate results and also says that *rasaushadhis* are the only remedy in the case of *asadhya rogas*. According to *Bhaishajya ratnavali* the person who knows all the *sastras*, but not having knowledge of *rasasastra* is said as incomplete.[4]

Apart from the remarkable action of *rasausadhis*; majority of *rasa dravyas* are not compatible with the human body constitution in their natural form and they are palatable only after proper *sodhana*. Without proper *sodhana* they cause various diseases and even death. Because of their poisonous nature they are also classified under *Khanija visha*. There are certain objectives behind *sodhana* technique as following, which may be applicable separately or collectively depending upon the need and nature of the drug material; Elimination of impurities, Potentiation of therapeutic efficacy of the drug material, Minimisation of toxicity of the drug material, Impregnation of *sendriya* (organic) qualities in to the drug material, Conversion of hard material into soft and brittle so as to proceed for further pharmaceutical techniques.[5] Hence *sodhana* place a major role in the action of *rasaushadhis.* There are many *visha dravyas* used in the various stages of *sodhana* of *rasaushadhis*. Thus makes the *rasaushadhis* to provide its appreciated results. The media used in the process of *shodhana* has an important role in breaking down or altering the chemical constituent that is not required. It is very interesting that specific media is used for specific substance. The media acts like a solvent to dissolve the material for easy separation from the insoluble impurities to eradicate toxic chemical substances from the drugs and also helps in physical transformation of some of metals and minerals. According to *Rasendra chutamani, Visha Varga* removes inertia from the drugs.[6]

Ageing, it is a continues process that which ends up in *dhatu kshaya*; *Ashtanga hridaya* explains *rasayana* by the term *Jarachikitsa* and according *Susrutha samhitha, Rasayana chikitsa* is mainly meant for *vayasthapana*.[7][8] According to *Sharangadhara* that which eradicates *jara* and *vyadhi* is considered as *Rasayana.*[9] Rasaratna samuchaya states that which makes the people away from the old age, diseases, and death is called as *Rasa*.[10] Most of the *rasa dravyas* after proper *sodhana* will act as *Rasayana*.

MATERIALS AND METHOD

Whole article is a critical review regarding the *vishahara dravya* used in the *sodhana* of *rasadravyas* and antiaging. All information about the *visha dravyas* used in the *sodhana* of *rasaushadhis* and all information about the action of *sodhitha rasaushadhi* in prevention of aging were collected from *Samhithas,* Ayurvedic text books, articles, internet and various other authentic sources.

OBSERVATIONS

Charaka Samhita has mentioned *Shodhana* as *Shauchakarana* (*Shuddhikarana*) meaning the process through which unwanted or toxic properties are removed. [6]

Rasashatriya dravyas which are having any origin are needed proper purification, for that purpose we should adopt different methods like *Swedana, Mardhana, Avapa, Nirvapa, Bhavana, Barjana, Dalana, Soshana* etc. *Shodhana* is necessary for *abhyantara* or *bahya dosha nirvarana* purpose, for example *Parada* is having *Nisargika, Yougika* and *Oupadika doshas;* to remove *Nisargika dosha* we should follow *mardhana,* for *Yougika dosha nirvarana* purpose, we should follow *urdhwa, adah* and *tiryak patanas* and for *Oupadika dosha nirvarana* purpose we should adopt various *samskaras*.[11]According to to *Rasaraja sundaramu sodhana* is of two types; one which is used for both only *vyadhinashana* purpose, and another procedure is used for both *Vyadhinashana* and *Rasayana* purpose. That means former one is *Samanya sodhana* and latter one is *Vishesha sodhana*.[12]

Though the literal meaning of word *shodhana* is purification, it has wider implications. The collective definition of *shodhana* is that; *Shodhana* is a process where it removes unwanted part from the drug or its ill effects, which enhances the properties of the drug suitable for desired actions. Removal of impurities, elimination of harmful material, modification of un-desired properties, augment the qualities, potentiate therapeutic efficacy, conversion of some of the characteristics of the drug, Render the drug fit for further / subsequent processing.[6]

Thus *rasadravyas* are treated with various plants, animal substances to render its toxicity. Usage of *visha dravyas* are found in various aspects of *sodhana* of *rasa dravyas,* thus makes the *rasaushadhis* to provide its appreciated results.

Parada:- [13]

Parada is considered as *Raseswara*, superior to all *rasas;* but parada which is available from nature and from the ores is having impurities, by consuming impure *doshita parada* will get many diseases. To remove the *Nisargika* and *Kanchuka doshas* and to prepare *rasayogas* purification is necessary. For *vyadihara* purpose and to prepare *rasushadhis parada samanya sodhana* is needed. *Dosharahitha parada* will cure the diseases and old age, after it will work as *Amruta*.

1. According to *Rasa tarangini: Parada* added with *Kumari swarasa, **Chitraka Kwatha**, Rakta sarsapa kwatha, Triphala kwatha* and *Bruhati Kwatha* and *bavana* for 3 days, after wash with *kanji* or hot water.
2. Another method in *Rasa tarangini: Parada* is taken and add *Guda, Trikatu, Haridra churna, Lavana panchaka, **Chitraka churna**, Triphala, Yavakshara, Sarjakshara, Tankana, **Dhatura beeja**, Sarshapa* should be taken $1/20^{th}$ part of *parada* and make *mardhana* for 7 days and wash with *kanji* or hot water
3. *Vahni dosha nivarana* according to *Rasa tarangini*: *Parada* and ***Chitramoola churna*** taken and *mardhana* with *Grutakumari swarasa*, after *mardhana* wash with *ushna kanji*
4. *Chapalya dosha nivarana* according to *Rasa tarangini: Parada* taken with ***Krishna dathura panchanga churna*** and *Gruthakumari swarasa , mardhana* for sufficient time and washed with *Amlakanji*
5. In *swedana samskara* according to *Rasatarangini: Mardana* of *Parada, Pippali, Maricha, **Chitraka**, Ardraka, Sunti, Saindhava, Triphala* and kept in *Burja patra* and *pottali* is prepared and *dolayantra swedana* in *Kanji*. Give *mrudu, madyama* and *mandagni* for 3 days and after *swanga seetala*, remove *parada* and wash with hot water. By *swedana samskara parada* **will lose *Antarbhaga malas***.
6. Another method by *Rasatarangini: Mardana* of *Parada, Trikatu, Mooli churna, Suryakshara, **Chitraka** , Ardraka* and *kalka* produced from *mardhana* is put in *Burja patra* and *pottali* is made and *dolayantra swedana* is done for 3 days, after *swanga seetala* remove *parada* and wash in hot water.
7. Another method by *Rasatarangini:* Same procedure, drugs used are *Parada, Pippali, Sunti, Srungavera, Lasuna, Ardraka, **Chitraka**, Meghanatha, Lavana, Mahabala, Navasadara, Ajasringa, Asuri, Gaveduka, Triphala*.
8. According to *Rasahrudaya tantra:* Explained same procedure, drugs used are *Parada, Sarsapa, Saindava lavana, Trikatu, **Chitramula**, Ardraka, Mulaka*.

9. *Moorchana samskara* explained in *Rasatarangini* **for *Visha, Vahni* and *Maladosha nivarana*** *: Mardhana* of *Parada, Grutakumari swarasa,* ***Chitramoola churna****, Triphala churna* up to *nistapishta* (7 days) and then *ushna kanji prakshalana*.
10. *Patana samskara* according to *Rasendra chintamani:* Take *urdwa patita Parada* and *Gandhaka* and made in to *kajjali* , then add ***Chitramula churna****, Saindhava lavana, Vanari churna, Sigru beeja, Shikhi churna* and pour *jambeera swarasa* for *mardhana* until *nashtapishtatwa,* then smear the paste on the inner side of the upper pot make seat at mouth with *mooltanimitti* cloth, keep the lower pot in the pit after filling with water. Then cover upper pot with *vanopala* and ignite, after complete burning collect *parada* by removing the seal.
11. *Patana samskara* according to *Rasatarangini*: Same procedure,drugs used are *Parada, Harithaki, Vibhitaki, Sarsapa, Saindava lavana,* ***Chitramula****, Sireesha beeja.*
12. Another *Patana samskara* by *Rasatarangini*: Same procedure and drugs used are same as that of in *Rasendra chintamani*.

    According to *Rasendra chintamani,* ***Naga*** **and** ***Vanga doshas*** **are removed** by *Patana samskara.*
13. In *Dipana samskara* According to *Rasatarangini*: Pottali is prepared with *Parada, Kaseesa, Maricha, Tutta, Sobhanjana, Tankana,* ***Chitramula****, Pancha lavana, Sarsapa* and *dolayantra swedana* for 2 says in mandagni in *kanji*. By this *parada* will get *bhubukshyata.*
14. Another *dipana samskara* by *Rasatarangini*: Same procedure , *dolayantra swedana* for 6 hours , drugs used are *Parada, Tankana, Pancha lavanas, Maricha, Sobhanjana, Sarsapa, Kaseesa, Yavakshara,* ***Chitraka****, Patika, Soupalika, Sarjakshara.*

Apart from this In *Rasatarangini* has explained *Kushmandadi gana,* and one of the drug is ***Vatsanabha***, and these drugs are useful to remove effects of *Amurchita Parada* and *Amruta Parada*. The *Rasamoolikas* explained in *Rasaratna samucchaya* also includes ***Dattura, Chitraka*** and ***Langali****; rasamoolikas* are meant for *Parada karmas*.

Research work on *Parada sodhana* with *vishadravya :-*[14]

Study on *mardhana, moorchana* and *uttapana samskara* of *parade*. Here in this study *swedana, mardhana , moorchana* and *uttapana samskaras* are done in which *chitraka* is one

of the ingredient used for *swedana* and moorchana ;and the study concludes that, *swedana samskara* results in *mala sidhileekarana* occurs and *moorchana samaskara* removes *mala ,agni* and *visha dosha*.

Swarnamakshika:-[15]

Sodhana of *swarnamakshika* according to *Rasaratna samucchaya: Dolayantra swedana* of *swarnamakshika* in ***Eranda taila*** and *Matulunga swarasa* for 2 *prahara kalas.* After *swanga seethala* remove *pottali* and collect *swarnamakshika.*

Tamra:-[16][17]

1. According to *Rasendrachintami:* ***Snuhi ksheera, Arka ksheera****, Saindhava lavana* and *kanji* are made into paste and applied over *Tamra patra* and do *nirvapa* in *Nirgundi Patra swarsa* for 12 times.
2. According to *Rasarnava* : ***Snuhi Ksheera, Arka Ksheera****, Lavana, Kshara, Amla lepa* is done on *tamra patra and Nirvapa* in *Nirgundi Swarasa.*
3. According to *Rasahrudayatantra - Lavana, Kshara, Amlavarga,* ***Snuhi*** and ***Arka Ksheera*** *lepa* is done on *tamra patra* and *nirvapa* in *Nirgundi Swarasa*
4. According to *Rasaratna samucchaya* : *Saindhava,* ***Arka Dugdha*** *lepa* is applied on *tamra patrav* and *Nirvapa* in *Nirgundi Swarasa*
5. According to *Bhavaprakasha* : ***Snuhi*** and ***Arka Ksheera****, Saindhava lepana* is done on *tamra patra* and *Nirvapa* in *Nirgundi Swarasa* (3 times)
6. According to *Rasamritam: Lavana and* ***Arka Dugdha*** *Lepa* over *tamra patra* and *Nirvapa* in *Nirgundi Swarasa.*
7. According to *Rasapaddhati:* ***Snuhi – Arka Dughdha*** *Nirvapa*

Vanga:-[18]

1. According to *Rasendrachintami:* melt *vanga* in *darvi* and pour in to ***Arka dugda*** , repeat process for 7 times.
2. According to *Rasendrasara sangraha* : Make *dalana* for 3 times in ***Arka dugda***
3. According to *Rasatarangini : Dalana* for 7 times in ***Arka dugda***.

Research work on *Vanga sodhana* with *vishadravya* :-[19]

A comparative pharmaceutico-analytical study of different methods of *Vanga sodhana*. Here *Vanga* is treated with different methods and in which maximum percentage of *Vanga* was obtained in *Arka Sodhitha Vanga*. *Arka dugdha* is *katu rasa, tikshna guna* which are strong enough to remove the *malas* present in *Vanga* and upgrade the *sukshmata. Sodhana* is best carried out by the *arka dugdha* due to its strong *tikshna virechaka* property in bringing out the *doshas* present in *vanga*. It induces the *laghuta* and *sigdha guna* essential for the enhancing the *bhasmikarana*.

***Vajra:-*[20]**

According to *Ayurveda prakasha: Vajra* is taken and kept in *Vyagrikanda,* make ball by *achadana* and mud and give *putapaka.* After *swanga seetala* remove and do *Nisheshana* in *Ashwamootra* and ***Snuhi ksheera***.

***Sasyaka/Tuttha:-*[21]**

According to *Rasaratna samuchaya: Sasyaka* is purified by 7 *bhavanas* in the decotion of *Rakta varga* , one of the ingredient in *rakta varga* is ***Rakta karaveera***.

***Gandhaka:-*[22]**

Ardraka swarasa, Jambira swarasa, Aja dugda, ***Dattura****, Karanja taila,* ***Eranda taila****, Matysa pitta, Kanji, Palandu swarasa, Ushna jala etc.*, are used for boiling, dissolving or subjecting to grinding etc. of *Gandhaka* for *sodhana.*

***Yasada:-*[23]**

According to *Rasatarangini: Asudha Yasada* is heated and melted *yasada* is poured in to ***Snuhi kshira*** , this procedure is continued for 21 times.

***Naga:-* [24]**

According to *Rasaratna samuchaya: Naga* is melted and poured in to *Nirgundi rasa* with *haridra churna,* ***Arka dudga****, triphala Kashaya, Bhringaraja rasa, gomutra, goghrita, sitajala, makshika and churnodaka* , and procedure is repeated for 3 or 7 times.

According to *Rasatarangini,* ***Ksheera traya*** (***Arka ksheera, Snuhi ksheera***, *Vata ksheerra)* are mainly used for the *sodhana* and *marana* of *rasadhi dravyas*. Likewise

according to *Bhavaprakasha,* ***Ksharashtaka*** which contain ***Snuhi*** *and* ***Arka kshara*** are used to remove malas from *rasadhi dravyas.*[25]

Whatever be the properties of the *rasaaushadhis* it can be performed only after proper sodhana. *Asodhitha rasa* preparations are more harmfull and leads to various diseases. So following of classical methods in the *sodhana* of *rasa dravyas* are very much essential. *Rasayana karma* is the main *karma* of majority of the *sodhitha rasa dravyas*.

According to *Rasaratna samuchaya* states that which makes the people away from the old age, diseases, and death is called as *Rasa* [10]. This states how much the importance of *rasa* dravyas in the prevention of aging is. The term *Jarachikitsa, Vayasthapana* are ultimately aimed at the prevention of aging and maintenance of health. According to *Sharangadhara* that which eradicates *jara* and *vyadhi* is considered as *Rasayana*. That which gives *deergayu, smruti, meda, arogya, youvana, shareera prabha and varna, swarya, vaksudhi* to human being and give strength to *deha* and *indriyas* is called as *Rasayana.* In *rasaaushadha kalpanas* we will get few Rasayana such as *Khlawiya Rasayana, Kupipakwa Rasayana, Pottali Rasayana* etc. [9] What all rasadravyas used in the preparation will provide its rasayana effect if it properly gone through the *sodhana* process.

Parada is considered to be a very powerful medicine. When mercury is properly processed, it balances all three *doshas*, has a soothing effect on the body and prevents diseases and old age. It nourishes all the vital parts of the body and increases the strength of the eyes. It is a *vrishya* (aphrodisiac), *balya* (tonic), *snigdha*, *rasayana* (rejuvenative), *vrana shodhana* and *ropana* (wound cleaner and healer), and *krimighna* (antimicrobial) and *yogvahi*.[26] Likewise there are a lot of *rasa dravyas* which are *Rasayana* in nature in their *sodhitha avastha*.

Ageing is an inevitable physiological process. Ayurveda considers it as *swabhava* of life. *Swabhava* is that which is very natural so *jara* is a phenomenon very natural to humans. Modern science is trying hard to identify the causes of ageing. A number of theories and observations have been projected such as genetic theory of ageing, immunological theory, stress theory and free radical theory etc. But it is not yet understood whether aging is a multifaceted process or is a result of single cause. It is widely accepted that in ageing, DNA damage occurs and how the *rasayana* prevents the damage of DNA is not known yet. But, *rasayana* acting as anti-oxidants mostly prevents enzymatic oxidative stress-induced damage. Work is in progress on Ayurvedic medicines to evaluate their nature as antioxidant.[26]

DISCUSSION

After the thorough review it is clear that *Visha dravyas* are being used in the *sodhana* of *rasa dravyas* in different ways. Different *sodhana* procedures are explained by the *acharyas* in their *granthas*. The term *Sodhana* can't be restricted to simple purification procedures; it should be understand by a broader manner. Whatever procedures carried out for attaning *shreshtatha* of *rasa dravyas* can be included under *sodhana*. The role of *visha dravyas* cannot be limited in *sodhana* procedures, it plays major role in other samskaras also such as *marana, satwapatna* etc. The ultimate aim of these procedures are to make the *rasa dravyas* in to incompatible form to perform its superior functions such as *Rasayana, vajikarana, sarvaroga nasaka* etc. So the classical *sodhana* procedures for *rasa dravyas* are inevitable as they provide amazing results if performed in proper way and even leads to dreadful results when mishandled.

CONCLUSION

The karma of *sodhitha rasa dravyas* are explained abundantly in various *granthas* and even many studies conducted on the same topic, that provide strong proof of the same. Even though, there are only few studies conducted to know the role of *visha dravya* in the *sodhana* of *rasa dravyas*. More such studies are required to know the results provided by those *sodhanas* and which procedure is better. Thus that may leads to new hopes in the field of Ayurveda.

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ROLE OF AYURVEDA IN THE MANAGEMENT OF CANCER THROUGH USE OF VARIOUS AGADAS

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ABSTRACT:

For every individuals cancer is the one word which is very scary and it is the second largest cause of death. In India there are nearly about 8,00,000 new cancer patients get registered with the national cancer registry program every year. Although heredity plays its role in causing cancer but that includes only 5% of cancer cases, non -heredity factors such as life style, level of physical activity, food, personal hygiene, environmental pollution are the major causing factors. Because of these factors toxins get deposited in body day by day called as cumulative toxins, in Ayurveda it is termed as dushi visha. Agadathanthra, is one of the branch of Ashtanga Ayurveda which deals with management of toxicity. The study about the principles of Agadathanthra and the etiology of cancer like diseases deduce that the diseases are mostly due to toxic substances which enter through food, air, water or medicine etc. Some of the toxin produces acute symptoms and some produces chronic symptoms. If we consider Gara , Dooshivisha and Viruddhahara concepts of Agadathanthra Agadtantra is a branch in which treatment of poison is explained and it is done by panchakarma by means of Shodhana (purification) method followed by various agada kalpas which are mentioned in samhitas for the treatment vishas(poison). Now a days there are various environmental factors causing cancer such as pollution, foods, foundation, perfume, hairspray, products such as shampoo lipstick, hair dye.These factors leads to deposition of toxins called as dushi visha (cumulative toxins) . Chemotherapy and Radiotherapy are the therapy that are used in cancer treatment will produce harmful toxic effects along with their beneficial effects. In case of cancer fresh cases do not report to Ayurvedic physicians (exceptions are there)for treatment. Mostly those people

who try modern treatment procedures such as Surgery, Chemotherapy and Radiotherapy come for Ayurvedic treatment. The first few doses In chemotherapy will act as therapeutic doses and it destroys the neoplastic cells and usually don't cause much damage to healthy tissues. But later the doses will cause serious damage to healthy tissues. The tendency of the Body fails to eliminate the excess drugs which deposits chemicals in the body and causes health problems for a long duration• These chemicals are indigestible and inexcretable by the body which lead to production of Ama. The Ama which is produced in the body shows the lakshanas of visha. In Ayurveda for the removal of such accumulated toxins various panchakarma procedure (purification) are described followed by various agada kalpas (formulation) that are useful to reduce or to remove toxicity

KEYWORDS: *AYURVEDA,CANCER, DUSHI VISHA, PANCHAKARMA, AGADA KALPAS, CUMULATIVE TOXINS*

INTRODUCTION-

Cancer, one of the most deadly challenges spreading drastically in 21st century, has now officially become the most dangerous killer in the world according to the World Health Organization. Who can deny the fact that cancer is related to adversary of modernization and advanced pattern of irregular and stressed life dominated by Western medicine. Scientists are making their best efforts to fight this disease; however the sure-shot cure is still awaited.

Ayurveda, the oldest Indian indigenous medicine system of plant drugs is known from very early times for preventing or suppressing various tumors using these natural drugs. And nowadays scientists are keener to researches on complementary and alternative medicine for the management of cancer. In Ayurvedic concept, according to 'Charaka' and 'Sushruta Samhitas' cancer is described as inflammatory or non-inflammatory swelling and mentioned either as 'Granthi' (minor neoplasm) or 'Arbuda' (major neoplasm).[1] The nervous system (Vata or air), the venous system (Pitta or fire) and the arterial system (Kapha or water) are three basics of Ayurveda and very important for normal body function. In malignant tumors all three systems get out of control (Tridoshas) and lose mutual coordination that causes tissue damage, resulting critical condition. Tridoshas cause excessive metabolic crisis resulting in proliferation.[2]

The modern cancer therapy which is known to burdened by drug-induced toxic side effects hoping perfect cure of disease form the complementary and alternative medicine system. The main goal of Ayurvedic therapy is to find the ultimate cause of an illness while the therapeutic

approach of Ayurveda is divided into four categories as Prakritisthapani chikitsa (health maintenance), Rasayana chikitsa, (restoration of normal function), Roganashani chikitsa (disease cure) and Naishthiki chikitsa (spiritual approach).[3] Commonly used herbal decoctions reported in Ayurveda are made of multiple herbs possessing great potential for a cancer cure; scientifically these formulations work on multiple biochemical pathways and influence different organ systems all together and nourish the body as a whole by supporting body‘s deference systems.

COMMON SIGN AND SYMPTOMS ACCORDIND TO MODERN CONCEPT–

1. Fever
2. Fatigue
3. Pain
4. Unusual bleeding
5. Nagging cough
6. Indigestion problems or trouble swallowing.
7. Unexplained weight loss
8. Skin changes

AYURVEDA AND CANCER

Ayurveda does not consider cancer as a distinct disease or set of diseases. Rather, ayurveda states that all diseases result from gross, systemic imbalances and malfunctions of the three *Doshas*. As mentioned above, specific diseases (including cancer) originate from interactions between abnormal *Doshas* and weakened *Dhatus* [4]. For example, vitiation of *Kapha Dosha* is a common link between cancer and diabetes; however, the organs (*Dhatus*) which are affected differ [5]. Thus, weak *Shukra Dhatu* (tissue regeneration and cell division) interacting with vitiated *Vata Dosha* and *Kapha Dosha* could lead to cancer, whereas excess and improperly formed *Meda* (adipose tissue) interacting with vitiated *Kapha Dosha*, can cause diabetes [6]. The magnitude of illness and clinical presentation of cancer are thought to vary, because each person has different patterns of exposure to pathogens and has dynamic changes in the functioning of *Dhatus* [7].

Instead of using targeted therapies for destruction of the tumors, ayurvedic drugs/modes of treatment attempt to correct metabolic defects and restore normal tissue functions (“*Sama*

Dhatu Parampara"). Like most forms of traditional medicine, ayurvedic medicine is holistic, since immunotherapy (*Rasayanaprayoga*) for rejuvenating the body's support systems, forms a significant component of cancer therapy [8, 9]. A review of Ayurvedic concepts of cancer and herbal anti-cancer drugs is available in the literature [10].

compares the modern and ayurvedic concepts of cancer. It highlights new molecular evidence which validates certain ayurvedic concepts of cancer. Earlier, cancer was thought to result from sequential genetic events regulating cell growth and death. It is now clear that abnormalities involving epigenetic regulation, diet, environmental factors, and immune function significantly affect the phenotype of a cancer patient Ayurveda also considers diet and environmental factors as important regulators of *Agni* and immunity, which in turn can increase risk for cancer. The concept of "shared pathology" between cancer and metabolic syndrome [11,12,13] has some similarities to the Ayurvedic view that interactions between vitiated Doshas and weak tissues (*Dhatus*) lead to systemic malfunctions which can manifest as cancers of specific organs certain anti-inflammatory drugs and antidiabetic drugs are effective against cancers because of the "indirect" involvement of inflammation and dyslipidemia in carcinogenesis. Ayurveda also uses "indirect" approaches to treat cancers because therapies aim to eliminate vitiated Doshas, rejuvenate body functions, and restore immunity (*Rasayanaprayoga*) Modern, cutting edge, anti-cancer therapy also uses immunotherapy and cancer vaccines.

GENERAL CONCEPT OF MANAGEMENT [14]-

Ayurvedic medicine can include:

- advice on diet and special diets
- taking specific Ayurvedic medications
- herbal medicine
- massage
- meditation
- yoga, breathing and relaxation techniques
- bowel cleansing

- In all type of cancer visha is present in the form of Ama. So the initial or first line management of all type of cancer is 'Ama nirharana '. Langhanam, Langhanapachanam, Sodhanam, are the treatment for alpa ,madhyama and prabhutha dosha respectively.

• But if cancer patient is very weak due to the disease sodhanam and langhanam should not be advisable. In that case mridulanghana and pachanashould be done, for that 'Sasundilajapeya' is given along with mild pachana aushadhas like Drakshadi Kashyam. After getting some 'bala' to the patient strong amapachana drugs like, Sapthasaram Kashayam pachanamrutham Kashayam, etc can be given

• Pathyakrama that stated in Visha chikithsa should be followed. As non-veg food, Oily foods, Guru Ahara etc. will increase the Ama and thereby help the progression of disease. Peyadi is only advisable. Specific Agada preparations are given along with this treatment protocol

• In radiation therapy, it produces toxins which produces toxic effects on body and also there is pitta vitiation. The radiation and chemotherapy produces the acute symptoms such as anorexia, fatigue, drowsiness.

• After some days along with the above symptoms there will be purpura, haemorrhage, mouth infection, ulceration of mouth and GI tract, diarrhoea, hair loss etc occurs

• These all symptoms resemble the lakshanas of Ama, Dooshivisha and Gara. In such conditions we will have to resort treatment of dooshivisha, gara and Ama. Purification therapy followed by administration of Agada formulations and Rasayana therapy are useful.

- Agada formulations
- • Vilwadi: hepato protective, radiotoxicity protection
- • Kalyanaka: radio toxicity protection
- • Ajithagadam: nephro toxicity protection
- • Malatyadi agada: hemotoxicity protection
- • Dhvaswakarnadi, patala paribhadradi, kataka beeja: promising water pollution controller
- • Vilwadi: vibrio cholerae- ciprofloxacin
- • Dushi vishari agada- lichen planus
- • Bhunimbadi agada, dushivishari agada: ecoli, staphylococcus oreus, shigella sonnei, salmonella enterica
- • Dhatakyadi agada: : ecoli, staphylococcus oreus, strepto coccus mutans
- • Sirisha punarnva, tulasi: reproductive and developmental toxicity

Herbs help total healing, reduces the side effects and cancer-associated complications.[15]

- *Andrographis paniculata, Annona atemoya, Phyllanthus niruri,*
- *Piper longum, Podophyllum hexandrum, Tinospora cordifolia, Semecarpus anacardium, Vitis vinifera, Baliospermum montanum,*
- *Madhuca indica, Pandanus odoratissimum, Pterospermum acerifolium, Raphanus sativus, Barleria prionitis, Prosopis cineraria,*
- *Amorphopallus campanulatus, Oxoxylum indicum, Basella rubra, Flacourtia romantchi, Moringa oleifera, Ficus bengalensis,*
- *Curcuma domestica, Allium sativum, Calotropis gigantean, Datura metel, Hygrophila spinosa, Juniperus indica, Moringa oleifera, Nigella sativa,*
- *Picrorrhiza kurroa, Rubia cordifolia,* etc.

are various plants having scientific evidence of anticancer property. Nowadays, many herbs are under clinical studies and being investigated phytochemically to understand their anticancer potential. More than 25% of drugs used during the last 20 years are directly derived from plants, while the other 25% are chemically altered natural products. Nine plant-derived compounds including vinblastine, vincristine, etoposide, teniposide, taxol, navelbine, taxotere, topotecan and irinotecan have been approved for use as anticancer drugs. 10-hydroxycamptothecin, monocrotaline, d-tetrandrine, lycobetaine, indirubin, colchicinamide, curcumol, curdione, gossypol and homoharringtonine are few more plant-derived compounds of high hope

Each herb contains multiple active principles that often operate synergistically producing therapeutic benefits and lowering the risks of adverse effects; and avoids the need for supplemental therapy to manage cancer cachexia. Now it is important to raise awareness and encourage implementation of Ayurvedic therapies for combating cancer and suggest an integrated approach in tumor management and treatment.

BASIC PRINCIPAL OF AYURVEDA-

1]DODHA,PRAKRUTI AND DISEASE

Thus far, we reviewed evidence linking inflammation, lipid metabolism, diabetes, and cancer. Before we discuss how ayurveda may provide new biomarkers of chronic inflammation, we explain the basic concepts of ayurvedic physiology.

Ayurveda defines three dynamic pathophysiological entities (Doshas), as the basis for all body function. The three Doshas are termed as Vata, Pitta, and Kapha, respectively. *Kapha*

Dosha governs the nervous and musculo-skeletal systems [16-17]. At the cellular level, Vata Dosha can be associated with signaling pathways regulating cell growth, differentiation, and cell death. Vata Dosha also governs movements of cells, molecules, nutrients, and wastes [18]. The Pitta Dosha is responsible for transformative processes such as digestion, metabolism, energy production, and maintenance of immunity [19]. At the cellular level, *Pitta Dosha* can be associated with actions of enzymes, growth factors, hormones, and the reactions required for energy homeostasis and maintenance of basal metabolism [20]. *Kapha Dosha* acts to form and maintain body mass, shape, and flexibility [21]. At the cellular level, anabolic processes (such as biosynthesis of macromolecules) and coordination of gene and protein function maybe associated with *Kapha Dosha* [22].

In ayurveda, one's basic "body constitution" is termed as "*Prakriti*." *Prakriti* arises due to a unique combination of fixed amounts of the three *Doshas* at the time of conception. Thus, *Prakriti* determines individuality and is akin to one's genotype. *Ayurveda* recognizes seven main types of *Prakritis*, based on the different combinations of the three *Doshas* at conception. Experimental analysis of the *Prakriti* concept revealed statistically significant correlations between an individual's *Prakriti* and the expression of specific genes and biochemical parameters [23]. Another study found correlations between *Prakriti* and HLA gene polymorphisms [24]. Although one's *Prakriti* (genotype) is fixed, one's *Doshas* are in dynamic equilibrium, and optimal function of each *Dosha* and normal interactions between *Doshas* are essential for good health. Accordingly, individuals with "balanced" *Doshas* (*Sama Prakriti*) are less susceptible to disease than individuals with abnormal *Doshas*. In fact, imbalances or disturbed interactions between *Doshas* are considered a major cause of disease. An abnormal *Dosha* can be inhibited, excessive, or vitiated (disturbed) . Indeed, the type and nature of disease, are primarily determined by the *Dosha* which is affected. For example, inflammatory diseases are associated with vitiation of *Pitta Dosha* , whereas obesity and metabolic syndrome are associated with vitiation of *Kapha Dosha* . A specific illness manifests when the vitiated *Dosha(s)* interact with weaknesses in specific organs (*Dhatus*). Conversely, pathogenic factors can also trigger abnormality of the *Doshas* and weaken the *Dhatus* [48]. Severe diseases, such as cancer, affect the entire body and usually involve vitiation of all three *Doshas* [25]

DOSHAS, AGNI, AND IMMUNITY

In addition to the concepts of *Doshas* and *Prakriti*, the Ayurvedic concept of *Agni* is important. *Agni* is the primary entity responsible for metabolic and transformative processes at the physiological and cellular levels. There are thirteen types of *Agni* which control all metabolic functions. When *Agni* is strong, digestion of food is normal, and even vitiated *Doshas* can be converted into nontoxic components .

"Incompatible foods" (*Viruddha Ahara*) can disturb *Agni* and lead to vitiation *of Doshas*. Indeed, certain useful foods can be pathogenic if ingested in certain combinations or in specific situations. For example, fruits and milk are each useful, but their combination is difficult to digest and can vitiate *Kapha Dosha* and lead to *Agnimandya* (weak *Agni*) . A complex interplay between diet and host factors regulates *Agni* and is in turn influenced by *Agni*. Thus, the nature and composition of diet, quantity of food, timing of food intake, and the intrinsic properties of food are important. In addition, an individual's ability to digest and process food depends on host factors such as *Prakriti*, status of *Doshas*, *Agni*, tolerance, and digestive factors . Thus, a feedback loop mechanism links diet and host factors with the strength and activity of *Agni*. Long-term consumption of incompatible foods can impair this feedback mechanism and increase susceptibility for various metabolic diseases and acute or fatal conditions .A weakened *Agni* can also result in decreased immune surveillance, which is a major risk factor for diseases such as cancer. Therefore, maintenance of *Agni* at optimum levels is important for avoiding pathogenesis .

DISSCUSSION

• Now a days there are various environmental factors causing cancer such as pollution, foods, foundation, perfume, hairspray, products such as shampoo lipstick, hair dye.These factors leads to deposition of toxins called as dushi visha (cumulative toxins) .

• Chemotherapy and Radiotherapy are the therapy that are used in cancer treatment will produce harmful toxic effects along with their beneficial effects. In case of cancer fresh cases do not report to Ayurvedic physicians (exceptions are there)for treatment. Mostly those people who try modern treatment procedures such as Surgery, Chemotherapy and Radiotherapy come for Ayurvedic treatment.

• The first few doses In chemotherapy will act as therapeutic doses and it destroys the neoplastic cells and usually don't cause much damage to healthy tissues. But later the doses will cause serious damage to healthy tissues. The tendency of the Body fails to eliminate the excess drugs which deposits chemicals in the body and causes health problems for a long duration.

• These chemicals are indigestible and inexcretable by the body which lead to production of Ama. The Ama which is produced in the body shows the lakshanas of visha.

• In radiation therapy there is vitiation of 'pitha', and the ionization of the water content of the cells will produce peroxide and other toxins which produces toxic effects on the body.

• In Ayurveda for the removal of such accumulated toxins various panchakarma procedure (purification) are described followed by various agada kalpas (formulation) that are useful to reduce or to remove toxicity.

CONCLUSION-

By maintaining the optimum level of tissues it helps to provide good immunity to Healthy person. In diseased person Rasayana dravyas acts at the level of Srotas as (body channels) thus helps in breaking the pathogenesis of disease by removing vitiation of body channels. The causal factor will be one of the three Doshas that is prevented from correct functional communication due to lifestyle habits, diet, and secondary effects of medication, environmental chemicals, or psychosomatic reasons.

Accordingly, ayurvedic drugs/treatment regimens are largely designed to restore the body's natural defense mechanisms and self-healing powers. These therapies are aimed at ensuring long-term recovery from disease by strengthening and rejuvenating major body systems. This holistic approach of ayurveda is also true of other traditional systems of medicine and is precisely what attracts people to alternative medicine. Indeed, we are in an exciting phase of modern medicine, wherein rigorous scientific evidence supports some aspects of holistic, traditional medical systems. Sustained and collaborative efforts between ayurvedic physicians, clinicians, and basic sciences researchers may lead to a deeper understanding and even convergence of certain modern and traditional principles underlying health and disease.

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Importance of medicated Sneha (oil) for skin health to avoid ageing process with special reference to kumkumadi taila: A review

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ABSTRACT

The skin is the largest and most important sensory organ of human body which plays very significant role as a physical and chemical barrier to contaminants entering the body. Body is exposed to environment, skin suffers from both extrinsic and intrinsic ageing factor. Skin ageing is specified by features such as wrinkles, scar, loss of elasticity, dry texture of skin etc. In present era beauty and personality is more necessary, along with increased demand of beautification. Change in life style and polluted atmosphere causes damage to beauty and personality. Face is the mirror of the body and very few people are with natural skin, but sometimes the face skin is affected by scar, wrinkles, hyper pigmentation etc. due to sunburn. Sunburn is the inflammatory process of skin caused by short U V radiation from the sunlight. In earlier days, material used for beautification comes under the category of cosmetics. As a consumer constantly attracted in using beauty product, various toxic ingredients and hazardous chemical use in cosmetics may causes adverse effect on skin and may also enter skin and other organ causing carcinogenicity.

However, in Ayurveda, the concept of beauty and cosmetics is as old as mankind and civilization. Plant extracts and natural substance have been formulated in cosmetics product. It has safe solution and biologically active ingredients easily absorbed into deeper layer of skin and influence at cellular level. In Ayurveda, formation of skin is described by as like a formation of cream of milk. Skin is a panchabhautik organ and it has predominance of vayu mahabhut. In Ayurvedic text, various skin disease like Vyanga, Tarunyapitika, Mukhadushika etc is mentioned under the Kshudraroga and so many remedies are described as internal medicine and external application are suggested in Kshudraroga chikitsa. Local application is most important and useful in skin disorders. Different medicated oils, *Udvartana*(Scrubs) *Lepas*(Face packs) etc are explained for local use. Kumkumadi tail is one such local remedy which are mentioned under Kshudraroga chikitsa and have wide therapeutic potential such as Vyanga(Melasma), Nilika,

Vaivarnya(Discoloration), Tilkalak, Pidika, Mukhdushika(Pimples) etc. and it enhance the beauty of face like gold. Sneha is defined as the soft, lubricating and oily substance. It pacifies Vata due to Snigdha guna. The main ingredients of Kumkumadi tail is Kumkum, Laksha, Raktachandan, Manjishtha, Yashtimadhu, Goat milk etc. Kumkum has rich in antioxidant properties helps in lightening the skin colour and improving complexion. Manjistha is a blood purifier, reducing pigmentation. Chandan has anti-ageing and anti- tanning properties. Yashtimadhu has antioxidant, anti-inflammatory, anti-ageing properties. Goat milk contains lactic acid and fatty acid helps in peeling the skin and it hold moisture with in the skin barrier. In all the cosmetic effect of Kumkumadi tail is anti-ageing, antiseptic, antibacterial and disinfectant properties.So Present paper will state the importance of Kumkumadi Taila in detail to avoid aging process with respect to its contents.

Keywords: Skin, *Kumkumadi tail, Kshudraroga chikitsa.*

INTRODUCTION

The skin is the largest and most important sensory organ of human body which plays very important role as a physical and chemical barrier to contaminants entering the body. Skin covers the external surface of human body. Body is exposed to environment, skin suffers from both extrinsic and intrinsic ageing factor.Skin ageing is specified by features such as wrinkles, scar, loss of elasticity, dry texture of skin etc. Face is the most beautiful organ of the body and very few people are with natural skin, but this skin is affected by certain peculiarity like scar, hyper pigmentary skin problem due to sunburn. In Ayurveda formation of skin is described by as like a formation of cream of milk [1]. *Vyanga, Tarunyapitika, Mukhdushika* is a *'Kshudraroga' which affect the skin.*In Ayurvedic text, so many formulation are described as internal medicine and external application for skin disease.Local application is more important and useful in skin disorders.

Kumkumadi tail is a Ayurvedic formulation and it is a *Sneha Kalpana* which are mentioned in *Kshudraroga Chikitsa Bhaishajyaratnawali* and its rogadhikar is *Vyanga, Nilika, Vaivarnya, Tilkalak, Pidika, Mukhdushika etc and it enhance the beauty of face like gold* [2].The first reference of *Kumkumadi tail* is quoted in Ashtang Hrudaya[3]. Qualities of *Sneha dravya* is *Snigdha, Guru, Shita, Drava,Pichil, Manda, Sukshma Gunah*[4]. The formulation of *kumkumadi* oil using traditional ingredients that are highly beneficial for maintaining natural complexion of skin. The main ingredients of *Kumkumadi tail* is *Kumkum, Laksha, Raktchandan, Manjishtha, Yashtimadhu,* Seasome oil,Goat milk etc. *Kumkumadi tail* was mostly given in *Kshudraroga Chikitsa*.

MATERIAL AND METHODS

1.Literature study of *Kumkumadi Tail* and its contents from classical tent of Ayurveda.

2.Review on previous research published from various national and international journal.

OBSERVATION

DRUGS : The main ingredient of *Kumkumadi tail* is *Kumkum.*

Details of all ingredient of *Kumkumadi Tail* are given in table no 1,2,3 &4 respectively.

Table no:1

Sr.no	Drug name	Family name	Part used	Quantity	Karma
1.	*Kumkum (crocus sativus)*	*Iridaceae*	Stigma	1Pal-(48gm)	*Vyangdosh har varnya kantivardhak*

Table no : 2 **Herbs for Decoction (***Kwath Dravya)*

	Drug name	Family name	Part used	Quantity	Karma
1.	*Raktachandan (pterocarpus santalinus)*	*Leguminosae*	Heartwood	1Pal-(48gm)	*Dahaprashaman varnaprasadan*
2.	*Laksha (Laccifera lacca)*	*Lacciferidae*	Resin	1Pal-(48gm)	*Vyanganash ,varnya ,kushtaghna*
3.	*Manjishtha (Rubina cordifolia)*	*Rubiaceae*	Root	1Pal-(48gm)	*Raktadoshnashak, swaravarnakruta twakdoshnashak*
4.	*Yashtimadhu (Glycyrrgiza glabra)*	*Leguminosae*	Root	1Pal-(48gm)	*Balavarnakrut,*
5.	*Daruharidra (Berberis species)*	*Berberidaceae*	Root/ Fruit	1Pal-(48gm)	*Varnya,twakdoshhar*
6.	*Ushir (Vetivera zizanioides)*	*Gramineae*	Root	1Pal-(48gm)	*Dahaprashaman, Vishahara vranaropak*
7.	*Padmak (Prunus puddum)*	*Rosaceae*	Stem bark	1Pal-(48gm)	*Kushtaghna,visarpa*

8.	*Neelotpal (nymphacea nouchali)*	*Nymphaeceae*	Root/Rhizome	1Pal-(48gm)	*Raktadoshnashak, Dahaprashman*
9.	*Nyagrodha (Ficus bengalensis)*	*Maraceae*	Bark/Latex	1Pal-(48gm)	*Varnya, Dahaprashaman*
10.	*Plaksha (ficus infectoria)*	*Moraceae*	Bark	1Pal-(48gm)	*Raktapittanashak Dahaprashman,*
11.	*Padmakesar*	*Nymphaeaceae*		1Pal-(48gm)	*Raktapittanashak Dahaprashman,*
12.	*Dashamula*			1Pal-(48gm)	

Table no:3 **Herbs for paste** *(Kalka Dravya)*

	Drug Name	**Family Name**	**Part Used**	**Quantity**	**Karma**
1.	*Manjishtha*			1*Karsha*-(12gm)	
2.	*Laksha*		*Resin*	1*Karsha*-(12gm)	
3.	*Yashtimadhu*			1*Karsha*-(12gm)	
4.	*Madhuk (Madhuka indica)*	*Sapotaceae*	Flower	1*Karsha*-(12gm)	*Dahaprashaman, Raktapittanashak*
5.	*Pattanga (Caesalpiniasa sappan)*	*Caesalpiniaceae*	*Heartwood*	1*Karsha*-(12gm)	*Dahaprashaman, Raktadoshnashak, Vranahar*

Table no: 4 **Other Ingredient**

Sr.no	Drug Name	Family Name	Part used	Quantity	Karma
1.	*Tila*	*Pedaliaceae*	Seed oil	4Pal-(192ml)	*Twakadoshprashman, vranahara*
2.	*Gulab*	*Rosa centifolia*	Flower	As per requirment	*Twakadoshprashman, vranahara*
3.	*Goat milk*		Milk	8Pal-(384ml)	*Varnaya*

FUNCTION OF INGREDIENTS

1.*Manjishtha*: It is a blood purifier, root improves blood circulation & to promote the healthy liver function. It is mostly used for improving complexion reducing pigmentation &inflammation, faster wound healing.

2.*kumkum*:Saffon has rich in antioxidants &famous in lightening the skin colour & improving complexion.

3.*Raktachandan*: It helps to purification of blood reduces inflammation.

4.Laksha: Their action is anti-inflammatory, rejevenative, hepatoprotective etc. It also improves skin complexion. its due to astrigent property it is used in bleeding wound.

5.*Yashtimadhu*:This herbs has the anti-inflammatory, anti-oxidants properties. It neutralizes the effects of toxins.blood purifier increases quality and quantity of blood useful in bleeding disorder.

6.*Sesome* oil: It has a anti-oxidant, anti-microbial & anti-inflammatory properties.

7.*Goat milk*: It contains lactic acid and & fatty acid helps in peeling the skin & it hold moisture with in the skin barrier.

DISCUSSION

Ayurveda gives equal importance to beauty as well as health cosmetology. Ayurvedas Acharya describe beauty techniques such as *Dincharyas, Rurucharyas, Rasayana.* In Ayurvedic text, *Vyanga, Tarunyapitica, Mukhdushika* is mentioned under the *'Kshudraroga'* and so many formulation are described like different *Taila, Gruta and lepas. Kumkumadi tail* is one of such preparation to treat skin disorder like scars, wrinkles and hyperpigmentation. The *rogadhikar* of *Kumkumadi tail* is *Vyanga, Nilika, Tarunyapitika* etc.

The main ingredient of *Kumkumadi tail* is *Kumkum* has rich in antioxidant properties help in lightening the skin colour and improving complexion. Seasome oil is one of the content of *Kumkumadi tail* it has an antioxidant , antimicrobial, anti-inflammatory properties. Goat milk contains lactic acid and fatty acid helps in peeling the skin and it holds moisture with in the skin barrier. *Kumkumadi tail* using traditional ingredients that are highly beneficial for maintaining natural complexion of skin. According to Ayurveda, it acts on *Bhrajak pitta* and *Bhrajakagni.* The normal status of *Bhrajakagni* keep the skin in normal condition.

CONCLUSION

On the basis of above study 'Cosmetic effect of *Kumkumadi tail* is antiageing, antiseptic, antibacterial and disinfected properties. The drug of *Kumkumadi tail* is *Vyanganash, Dahaprashaman, Twakdoshnashak etc.*

Kumkumadi tail enhance the beauty of face like gold.

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EXPLORING THEURAPEUTIC ASPECT OF NAVJIVAN RAS IN GERIATRICS

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ABSTRACT:

Ayurveda is the ancient Indian science and it has eight branches among which one of the most important branch is Rasayana Tantra. Rasayana means the path that rasa takes. It is also considered as the science of nutrition leading to provide the best quality of body tissues in form of longevity, immunity, resistance against disease and improved mental health. Rasayana contains herbo-mineral combination which is helpful for maintaining the balance between body and mind. It improves the qualities of *Rasa Dhatu* which influence the health of other *Dhatus* in the body so it can be considered that any medicine that improves the quality of *Rasa* is called as *Rasayana.* In Ayurveda different types of *Rasayana* like *kutipraveshik Rasayana and Vatatpic Rasayana are explained*. In *vatatpic Rasayana* ayurvedic formulations are used for prevention of ageing, Re-establishment of youth, strengthening of life, brain, mind and prevention of diseases. In Ayurveda some metallic mineral formulations including *visha dravya* are combined to form *Rasakalpa* which acts as Rasayana (Rejuvenating Agents) so it is very important to know about poisonous drugs whether they have been used in proper form and prescribed dose and after that they act as potent therapeutic agents. Although Visha formulation are indicated for various diseases, but some formulations are also used for *Rasayana* purpose in order to strengthen the body cells. Due to its special *Vyavayi, Vikashi* properties it gives fast action and regenerate the body. *Navjivan Ras* is one such formulation which contains kuchala as a vishdravya along with *Rasasindoor, Abhraka Bhasma, Loha Bhasma, Trikatu* etc. Kuchala is a nervine tonic, aphrodisiac and mainly acts on motor neuron system. Rasasindoor and *Abhrak Bhasma* are the best *Rasayana, saptadhatu vardhak* and have *Balya* properties. Whereas *Loha Bhasma* is the best rejuvening agent to *Rakta Dhatu*. It also act on *medodhatu* and so used to reduce obesity. Present paper will elaborate the importance of Navjivan Rasa with reference to its contents.

KEYWORDS: Rasayana, Navjivan Ras, Ageing, Ayurveda.

INTRODUCTION: The ayurvedic pharmacology is divided in to three different parts as herbs (*sthavar*), metal and mineral(*khanija*) and animal kingdom (*jangam).*It is very important to know about poisonous drugs as when they are used in the proper dose and proper form ,they act as potent therapeutic agents. Many classical literatures give the explanation about use of *visha drvya* (poisonous substance). In Rasa shastra many drugs or *kalpas* contain *visha drvya* in much more amount and that *kalpa*s act on different *vyadhis.* Some *Rasakalpa* plays main role in

Rasayana karma. Visha and upavisha dravya are highly valuable and they have quick action when used in smaller doses. Hence Navjivan Ras contains kuchala and it is highly poisonous but the Navjivan ras acts as Rasayana dravya with its other ingredients. It is included in upvisha in classical texts. The strychnine is most popular folk medicine. Now a days in rural area people also use it in medicine form. This shows how an acute poison can become an excellent drug if it is properly used and even a drug if not properly administered it becomes an acute poison . Strychnine is a main contain of kuchala which was first used medically in 1540, and continued to be used in many stimulants [1]

Navjivan Ras having kuchala (*visadrvaya*) and it acts as Rasayana to achieve homeostasis and thus delaying the process of aging phenomenon and prevention of disease.[2]

MATERIAL AND METHOD: Present paper shows that visha dravya included in *Rasoushadhi* for preventing ageing or act as Rasayana karma.

Ingredients of Navjivan Ras

Detail of all ingredients of Navjivan Ras are given in table no.1 and Bhavana dravya are given in table no. 2. Aadrak swaras, Nagvelipatra swaras are used as Bhavana dravya and vati of Navjivan Ras is made by the process described in Rasatantrasarsiddha prayog sangrha part 2.

Table no 1. Detail of Navjivan Ras

Drug name	Family name	Ras	Virya	Vipak	Karma
Kupilu(strychnos nux vomica)	loganiaceae	Katu,tikta	ushna	Katu	Shothahar,strotorodhahar, Kandughna.
Chitrak (plumbago zeylanica)	plumbaginaceae	Katu	ushna	Katu	Dhatupusti, dipan, strotorodhahar
Pippali(piper longum)	piperaceae	katu	anushna	katu	Shothahar,amapachak.
Maricha(piper nigrum)	piperaceae	Katu	ushna	katu	Pramathi,kledhar
Shunthi (zinziber officinale)	zinziberaceae	Katu	ushna	Madhur	Dipan pachan
Nagveli	piperaceae	Katu,tikta	ushna	katu	Pachan

Table no 2. Details of Navjivan Ras

Drug name	Colour	Sparsha	Ras	Karma
Loha bhasm	Reddish brown	soft	niras	Rasayana
Abhrak bhasm	Reddish	Soft	Niras	Yogvahi ,Rasayana
Rasa sindur (shadguna jarit)	Red	Soft	Niras	Yogvahi

shodhana of kuchala - It is a process to reduce the toxicity so as to make it available to the body within safe therapeutic doses.

Process- wrap kuchala seeds in cloth, keep it in dolayantra dipped cow's milk, and boil it for 3hrs. after 3hrs remove the seeds, grind it in iron kharal, and use the churna. skin of seeds is removed. It is boiled with milk for 7 days, dried, then it is fried in ghee and powdered.

Shodhan did in Godugdha because of Godugdha having property of Rasayana hence it is useful to prevent aging and Rejuveing the body.

NAVJIVAN RAS PREPARATION:

Rasasindur(shdagunajarit) 20 gm

Abhrak bhasma - 20 gm

Loha bhasm - 20 gm

Shudha kuchala – 20 gm

Shudha chitrak - 20gm

Trikatu – 40 gm

Should gives Bhvana of nagveli patra swaras , adrak swarasa ,because nagveli patra swaras plays important role, it reduces toxicity of kuchala and induces desired qualities of Navjivan ras.

So it is an ayurvedic medicine with herbal and mineral ingredients in tablet form. It is used in rejuvenation and antiaging treatment [2]

DISSCUSSION - Properties of kuchala (visha drvya) like ushana, ashukaritwa ,teekshna due to these propertie dravya get spread rapidly in the body. So for the quick action, of Navjivan Ras contain vishadrvya as kuchala as their ingredient.by using these properties of vishdrvya ,Navjivan ras made more effective and also their other ingreadient as Abhrak bhasm is good nerve tonic it nourishes the nerves and inhibits damage of the nerves. also it helpful for strengthen muscles to some extent due to its rejuvenating property and also reduce weakness of nerves due to its Rasayana property. Chitarak mul having antioxidant property. Rasasindur(shadgunajarit), sukshma vyavai in nature. And for increases the more effect of Rasayana it used as shadguna jarit Rasasindur or makardhwaj or purnchandrodya in long duration .because visha drvya (kuchala)containg these Rasayana should not used long term.it used in kapha prakruti and due to these increased load on heart so its used along with.shadguna jarit Rasasindur and act as Rasayana .Trikatu churna reduces vat and kapha Dosha and improve digestion ,prevent constipation .Loha bhasma improved the immunity and also helps to fight weakness and provides strength.

CONCLUSION: Vata Dosha has sukshma guna and visha also possess sukshama ,vavyai,vikashi, gunas. And Rasaoushadhies are made up of some herbal contents in order to carry out the mode of action of herbal drugs visha drvyas are used in Rasoushadhi. Vitilation of vata Dosha occurs in increasing age or in condition of weakness .so for preventing the ageing used visha drvya and there properties like ushna, tikshna, vhyavai, vikashi gunas of visha. so Rasaoushadhi acts on that respective system by nourishing it .hence in this way visha drvyas carry out the Rasayana karma to prevent ageing.

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