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Jamnagar, India



## Souvenir

Based on

**Prof. M.S. Baghel**

**Memorial Lecture Series**

**[February 09, 2021 – January 09, 2022]**

**Edited by Dr. Gopal Basisht**

**Foreword by Vd. Rajesh Kotecha**



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वैद्य राजेश कोटेचा  
Vaidya Rajesh Kotecha

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### **FOREWORD**

Prof. M. S. Baghel was a great visionary in the field of Ayurveda. He devoted his life for uplifting the standards of Ayurveda education and research. I remember him and pay tribute to his holy soul. He has been the founder member of the Charak Samhita New Edition Project initiated by Dr. Gopal Basisht with stalwarts of Ayurveda across India. This project is a milestone to change the views of scientists and researchers to read classical Ayurveda text to contemporary evidence-based Ayurveda on a single open-access platform. Prof. Baghel played a crucial role in establishing Charak Samhita Research, Training and Skill Development Centre in collaboration with I.P.G.T.& R.A.(now I.T.R.A.) Jamnagar. This Center is continuously involved in propagating Ayurveda across the globe. A lecture series, " Prof. M.S. Baghel Memorial Lecture Series," was organized to offer tribute to the legend. It included twelve lectures delivered by experts on the topics related to challenges in the healthcare field. The editorial team and speakers have converted the video lectures into articles to enrich the research database. It is a pleasure to read this souvenir of articles based on lectures delivered by international Ayurveda experts on critical areas of Ayurveda research and education.

The critical and challenging topics for Ayurveda clinical research and education are comprehensively described in this souvenir. This publication is a quality content with a mix of experience and evidence by eminent specialists of Ayurveda. I congratulate Dr.Gopal Basisht and Dr. Anup Thakar for conducting this unique lecture series and transforming the lectures into documentary evidence. I am sure that this Souvenir will be read and referred by the learners and scholars seeking knowledge of Ayurveda as a science.

राजेश कोटेचा

**(Rajesh Kotecha)**

New Delhi  
23<sup>rd</sup> February, 2022



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## Preface

Prof. M. S. Baghel is immortal through his teachings and practical approach towards Ayurveda. He envisioned propagating Ayurveda on the global platform and devoted his life to this purpose. He played a significant role in uplifting the status of Ayurveda as a scientific evidence-based healthcare system. He has been instrumental in developing Charak Samhita New Edition on the wiki platform. This website is viewed in more than 180 countries and read by more than 15K readers per month. Prof. Baghel was the founder member and advisor of Charak Samhita Research, Training and Skill Development Centre (CSRTSDC). When he left the physical world on January 09, 2021, it was a heavy loss of all Ayurveda fraternity. The center's Advisory board decided to pay homage through a lecture series in his memories. It was decided to organize a monthly lecture on 9<sup>th</sup> day of every month till his first death anniversary.

The Prof.M.S.Baghel Memorial Lecture Series included twelve talks by eminent speakers on important healthcare topics. As Prof. Baghel was an internationally renowned personality, the experts on specific issues readily accepted the invitation. All the lectures were streamed live on the Facebook Page of the Centre. These lectures were well received by the global audience and have more than 10K views. The series was successfully completed on January 09, 2022. The video recordings were edited and posted on the YouTube channel. The team of CSRTSDC transformed these lectures into research-based documents with the help of speakers and published them online on the website for readers. A comprehensive collection of all these important articles is being published in this souvenir.

The critical and challenging topics for Ayurveda clinical research and education are elaborately described in this souvenir. We acknowledge the support of all speakers Prof.S.K. Sharma Khandel, Vaidya DilipGadgil, Prof. H. M. Chandola, Dr. Mukund Sabnis, Dr. Rohit Sane, Dr. S. H. Acharya, Dr. S.R. Narahari., Dr. Narayan Prakash, Prof. Vd. Upendra Dixit, Vaidya Ram Manohar and Prof. Dr. S.N. Gupta for their timely deliberations and expert talks. We hope this souvenir will be helpful for all learners of Ayurveda and serve the purpose of a reference manual on major challenges in the healthcare field. Ayurveda can provide a better solution in these areas, as discussed in the respective articles.



**(PROF. ANUP THAKAR)**  
**DIRECTOR**

# Gopal K. Basisht, MD

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## Editorial

Prof. M. S. Baghel was a great teacher and researcher. I was impressed with his thoughtful deliberations. Being a modern physician, I was a new learner of Ayurveda. But, Prof. Baghel made the learning simplified. He encouraged me to learn fundamental principles of Ayurveda and include them in my clinical practice. We discussed many aspects of education and research in Ayurveda and healthcare. He was a key person who led me on the path for publication of Charak Samhita New Edition Project. He guided from time to time and made all his resources available for proper project implementation. Unfortunately, we lost him in mid-way. He will be remembered forever in the form of his contribution and dedication to this project.

The lecture series organized in his memory and publication of this souvenir is an effort to pay tribute to the stalwart. In the current global pandemic Covid-19, the article "Principles of management of Infectious diseases through Ayurveda" by Prof. S.K. Sharma Khandel gives insight towards empowering defense strategies to fight infectious diseases. The article on management of Cancer by Vaidya Dilip Gadgil focuses on preventing and treating malignancies through Ayurveda. The writing on the management of acid peptic diseases by Prof. H. M. Chandola provides comprehensive information about the most typical health problem.

Dr. Mukund Sabnis, a renowned expert in obesity management, has poured experience-based views in his article on the management of metabolic syndrome and obesity in Ayurveda. Another well-known cardiologist, Dr. Rohit Sane, has given precise information with published evidence on the ayurvedic management of cardiac diseases. The article on the management of neurological disorders by distinguished professor Dr. S. H. Acharya elaborates the scopes of Ayurveda services in neurology. Dr. S.R. Narahari, a dedicated researcher in dermatology, has put his experience and evidence together in writing on the management of skin diseases in integrative medicine.

Dr. Narayan Prakash covers the scope of the fast-developing research field of Ayurveda psychiatry in the article on the management of psychiatric diseases. Prof. Vd. Upendra Dixit, an eminent physician, wrote the experience-based protocols for managing medical emergencies in Ayurveda.

In the article on the management of rheumatic diseases, Vaidya Ram Manohar has narrated the fundamental concepts very nicely. Prof. Dr. S.N. Gupta, a renowned expert in managing kidney diseases, put forward his clinical practice experiences with scientific evidence. Prof. Anup Thakar precisely answers the challenges of practicing panchakarma to preserve health in the modern lifestyle in his article. We thank all speakers for their active participation and kind support. I hope this souvenir will be helpful for the learners of Ayurveda.



**Dr. Gopal K. Basisht**  
**Orlando, Florida, U.S.A.**

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# Infectious diseases

Prof. S. K. Sharma Khandel  
Director, Arogya Laxmi, Jaipur, India



Website link:

[https://www.carakasamhitaonline.com/index.php?title=Infectious\\_diseases](https://www.carakasamhitaonline.com/index.php?title=Infectious_diseases)

Youtube link of recorded lecture: [https://youtu.be/ThxVNyg\\_vDk](https://youtu.be/ThxVNyg_vDk)

## Principles of Diagnosis and Management of infectious diseases in Ayurveda

This article is based on lecture delivered by Prof. S. K. Sharma Khandel as a part of Prof. M.S. Baghel Memorial Lecture Series on 09th February 2021.

This lecture is presentation of discussion sessions with my beloved friend, associate and teacher Prof. M. S. Baghel. 41 years ago, when we first met, he asked me the question about management of infectious diseases in Ayurveda. Since then, we had frequent discussions on this topic. I pay homage to my friend through this lecture. Truly this is based on our frequent discussions so that it will be right to add his name as author. Whole concept and management of infectious diseases and their sources are mentioned in Ayurveda is summed up in a chapter in nutshell under the title of Krimi.

Charak or all our ancestors had extra-ordinary capacity of narration in a nutshell. It is like coding. Similar to The Da Vinci code. We need to decode it. As there are many colors but basic colors are 3. All others are a combination of these 3. There are 7 basic tunes from Sa to Ni. All the music arises from it. Only 10 basic numbers from 0 to 9. All numbers come from its permutation & combination. Only 26 alphabets. All the language derived from it.

## Importance of unlearning, learning and relearning in ever-dynamic medical system

“The illiterate of the 21st century will not be those, who cannot read and write, but those, who cannot learn, unlearn and relearn.” [Alvin Toffler]

Medicine has a dynamic system, concepts and practices consistently need modifications and reorientations. Many of the scientific concepts have expired or outdated need unlearning. In the present situation of COVID19 pandemic, we gained new knowledge and many existing concepts are disapproved. Re-learning of age-old fundamental concepts in inadequacy of conceptual basis in newer knowledge. Similarly is the case of contagious or infectious diseases. This presentation will also follow the same pattern. First, we should

see, what is new to be learned; next what concepts or beliefs we should unlearn, and last how to relearn the real knowledge.

### **References from ancient wisdom**

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Ayurveda covers almost aspects of a human life for overall development of a person including health. However the central Health is a central issue. The ancient Indian systems explain everything in concise manner. The case is same when it comes to infectious diseases. In Rigveda, which is considered as the oldest source of knowledge, and in the three major treatise (bruhattrayis), written 2000 – 5000 years back, have some descriptions regarding the microbes. It is an unsolved mystery that how they visualized these invisible microbes or source of infections. In Harita Samhita, there are references regarding invisible microorganisms in blood called "raktaja krimi" which cannot be considered as worms. They are basically bacteria like microorganisms.

### **Perspective of microorganisms**

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By the word 'Krimi', generally it is considered as parasites/helminths/nematodes etc. But krimi includes bacteria, parasites, fungus and even the virus. Ayurveda mentions 20 types of krimi and descriptions regarding its color, size, location, modes of infection, modes of prevention and its treatment. But they are never considered as the main source of disease in Ayurveda. The concept of disease manifestation in Ayurveda is totally different from that of infection. However, Sushruta mentioned about aupasargika roga or contagious diseases. Ayurveda, being the science of life, covers every aspect of life. The most useful and beneficial is discussed repeatedly and in detail in Ayurveda. The rest of the concepts, which are not in practice, remain undetailed. Even though there are descriptions of 20 types of krimis in Ayurveda [Cha.Sa. Sutra Sthana Ashtodariya Adhyaya ], they need not be detailed here because of their unpopular names and ambiguous explanations.

### **Epidemics and pandemics**

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Descriptions of epidemics and pandemics are available in Ayurveda. Eg. Janapadodhvansaniya Vimana Adhyaya in Charaka Samhita Vimana Sthana. Descriptions of some fungal infections are also mentioned under the term kavaka in Sushruta Samhita. Their specific management is not explained because it comes under the general guidelines for treating toxins in the form of dooshi visha, aamvisha and asatmya. Some community health management modalities like drumming or playing flutes after smearing with specific medicinal pastes were used to prevent the spread of diseases as explained in dundubiswaniya adhyaya of Sushruta Samhita.

## What is to be re-learned ?

In Ayurveda there is no direct reference regarding any anti infectious or antibacterial or antiviral drugs. Some pharmacology and microbiology studies have reported such properties of hundreds of Ayurvedic drugs like neem, tulsi, guggulu, vidanga, kampillaka, jati, tikta, katuka, manjistha, panchvalkala, triphala, amrita, sudarshan, vasa etc. and even Ghee oils honey are proven antibiotic properties, but in classics there is no such reference.

## Sequence of causes and progression of disease in Ayurveda

Many Fundamental differences are there in Ayurveda and present medical system. Ayurveda is public health centric while modern medicine is diseases centric system. Ayurveda gives prime importance to soil (kshetra), seed (beeja) and season (ritu) theory for the manifestation and progression of diseases. In Ayurveda, dosha is considered as the seed/ pathogen; body is soil; and seasons are the aggravating and pacifying factors. If the body or host is weak to prevent the invasions of morbid factors, the disease process starts, and seasons can modify these in mild, moderate or severe states.

1. Food (ahara): It is the primary cause of disease and health. Food includes everything that we consume or take inside our body. In that sense, the food that we eat, the water we drink and the air we inhale. The food of senses includes their objects and perceptions.
2. Digestion (Agni): Next step is the digestion of food. If the digestive power is good enough to digest even the bad food, it won't create problems. But if the digestive power at various levels is weak, that will result in improper digestion and the formation of metabolic toxins (ama).
3. Metabolic toxins (ama): This is the first pathogen formed in the sequence of disease manifestation. This itself acts as dosha (ama dosha/ama visha) and has the capacity to vitiate the body constituents.
4. Pathological interactions (dosha – dushya samurchana): Dosha is the offender and dhatu or tissue is the defender. If tissue is adequately healthy to withstand the attack of dosha, the disease won't manifest.
5. Body channels (srotas): If the body channels for transport and transformation are patent enough to circulate the food or essential nutrients then even the pathogens won't cause any disease.
6. Defective body channels (Kha vaigunya): This is the most important factor in the pathogenesis of disease. If the channels are defective due to inherited genetic disorders or acquired causes (nidana sevana) or due to other comorbid or previous diseases or iatrogenic causes or even poor mental conditions; disease can manifest. In this stage, the invaded microorganisms, bacteria or viruses, get opportunity to produce the diseases.

If the season (ritu), soil (kshetra), nourishment (ambu) and seeds (beeja) are not favorable for the invaded micro-organisms, the disease won't manifest. If the season is not favorable, the soil not fertile, there are no nourishing factors for pathogens and the seed not potent, disease won't occur.

For Example: This concept can be best depicted by an example. Recently, in an interview a professor in medical college said that he was very happy when he found the source of cholera infection in a village. The survey conducted by them identified drinking water as a source of vibrio cholerae. However, among the 1038 villagers, who commonly used the well water for drinking, only 31 persons got infected. The rest 1007 persons were not affected even though they used the same water for drinking. This survey reveals strong host defense of those individuals and unfavorable disease manifesting factors for the bacteria. This shows even the entry of bacteria inside the body won't essentially cause the disease. If all the above-mentioned six stages of disease manifestation are affected, the disease will manifest. Bacteria are only a feeble (vyabhichari) cause. On the other hand, judicious use of anti-biotics is necessary to protect health of the 31 individuals and save lives if the bacterial load is significantly higher than the host defense. So, clinical application of symbiohealth approach in war against diseases is highly useful. The sword (attack against microbes) and shield (protection and strengthening host defense) are judiciously used to win the war in Symbiohealth.

### **Principles of treatment of infectious disease**

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Even though Ayurveda mentions about infectious diseases like jwara, kushtha, shosha, shotha, vrana etc., there is no uniform treatment protocol to identify and manage infections. Ayurveda focuses on health of the host and not the disease. Ayurveda is treating diseases like typhoid, tuberculosis etc. but is not treating the disease-causing microorganisms as such. Ayurveda has its own treatment principles. Infections are considered as one of the causes (nidana) of disease and the management is purely based on dosha, dushya, agni and srotas.

### **Assessing the pathogenesis and prognosis**

---

Ayurveda considers two ways to assess and manage pathogenesis.

1. Separating few grains from sand
2. Separating few pebbles from millets

#### **1. Separating few grains from sand**

Grains are useful and sand is non-beneficial part. In case the disease is severe, the treatment must focus primarily on the beneficial factors (grains) to protect life. The harmful factors (sand) are secondary objectives to be treated. Hence, the vital organs shall

be protected irrespective of pathology. The major three vital organs mentioned in Ayurveda are head, heart and bladder. Ojas (essence of life) is the fuel to these vital organs. So, the ojas must be protected in such a condition.

## **2. Separating few pebbles from millets**

The other case presents with more useful (millets) and less harmful (pebbles) factors. In this case, the disease is new or slow progressing or mild. In this case, the harmful factors can be easily identified and removed to protect health. Purpose of this approach is very clear, “conserve the useful and throw out the waste”. If the infection is severe, save the healthy tissues and in case of lesser infection, remove the infecting agents. If the tissues are intact, pathology will never happen. Here the organ physiology is much stronger and clearer than the disease pathology. If we can protect dhatu or tissue, it itself will repair the organ. Therefore, Ayurveda gives clear directions for what is to be screened out and how to prevent the diseases and what is to be protected.

## **Relation of tridosha and seed-soil theory**

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Kapha itself can be considered as the kshetra or soil. It is the supreme source of nutrition. All the formed structures in body are due to kapha. If the nutrition is proper or if the kapha is optimum, the chance of getting disease is rare.

Pitta can be considered as seed (beeja). The body (kaya) is developed and evolved from pitta. Food cannot nurture the body without a metabolic transformation by pitta or agni. Sattva is an essence of digestion metabolism, which nurtures ojas. It acts as a connecting switch between body and mind.

Season or ritu balances the internal environment with cosmic rhythm. Vata is the regulator of seasonal fluctuations in the body and in the cosmos. The role of vata is alike the role of rajas in mind. Rajas is creator of desires, lust, attachments and aversions. It changes the internal atmosphere of the body and mind. For the proper functioning of body, uninterrupted movement of vata throughout the body is required along with its placement at proper locations in the desired quality. Because of this nature of vata, it is considered as the creator as well as terminator of disease.

Thus, the three dosha are related with the soil-seed-season theory. These play significant role in preservation of health in normal state and creation of disease in abnormal state.

## **Conclusion**

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Infectious agents should be considered as one of the causes (nidana) only. The treatment of such conditions must be based on Ayurvedic principles of soil-seed-season theory and factors like dosha, dushya, agni, srotas etc. If the tissues are healthy, infectious agents can't

produce the disease. So, our aim must be to attain the optimum qualities of dhatus/tissues and strengthen the host defence.

### Interaction session

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Q. (Dr.Aneesh) Can you elaborate the concept of asatmya in the context of infectious disease?

A. The concept of satmya and asatmya is important in all diseases. In all the 10 factors like dosha, dushya, bala etc. satmya has to be considered. While using potent antibiotics also, we have to consider the satmya of the patient. If so the efficacy of the antibiotics will also enhance. If the treatment is given after considering the satmya and asatmya, disease can be cured with minimal medications.

Q. (Dr.Ramya Alakkal): Covid has presented with varied clinical symptoms belonging to all systems. What should be given importance while treating, the dosha or dushya or roga-marga. How can we understand the severity according to our perspective?

A. Roga marga or disease pathways are narrated in the light of severity. The disease pathways including vital organs (Marmastasandigata roga marga) are more severe. Uttara dhatu or gambhira dhatu also means severity. Rasa the superficial dhatu is 9 anjali in quantity and the deepest dhatu, shukra is much less in quantity. The rasa which is in more quantity can dilute the pathogen, but the shukra cannot do so. The diseases of gut or superficial body constituents (Koshthagata roga or uttara dhatu gata roga ) are easy to treat, but those of deeper tissue (gambhira dhatu gata roga) are always difficult to treat. What proportion of affection of dosha and how many combinations of dosha and dushya are also important while considering the prognosis and treatment? Kaphaja roga are easily curable, vatika roga are difficult to cure and pittaja roga are dangerous as they can spread fast. So, while treating a disease dosha, dushya and rogamarga are equally important.

Q. (Dr.Yogesh Deole) Vaccination triggers antibody response in body. Can it be considered one among the soil (kshetra) strengthening measure?

A. Suvarnaprashana is being done for ages to strengthen the host defense in childhood. Vaccine includes the same mechanism. Suvarnaprashana shall be propagated more to enhance immunity and strengthen the soil (body).

# Understanding Cancer in Ayurveda

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Website link: <https://www.carakasamhitaonline.com/index.php?title=Cancer>

Youtube link of recorded lecture: <https://www.youtube.com/watch?v=j4t-W Zde9k>

This article is based on lecture delivered by Prof. Dilip Gadgil as a part of Prof. M .S. Baghel Memorial Lecture Series on 09th March 2021.

## Cancer in Ayurvedic perspective

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According to the World Health Organization, cancer is a leading cause of death worldwide accounting for nearly 10 million deaths in 2020. It includes a large group of diseases that can affect any part of the body. It is also known as malignant tumours and neoplasms.<sup>[1]</sup> The cases of cholangiocarcinoma, liver metastasis, malignant melanoma were observed in early days of author's Ayurveda practice. The cases came mostly in advanced stage, with very less life expectancy, various symptoms associated with the disease & its treatment of chemotherapy/radiotherapy. The patients of cancer are in depressed & stressful state of mind. There are doubts about efficacy of ayurvedic treatment & diet. The available treatments are highly expensive and un-affordable. These challenging factors triggered interest in management of cancer through Ayurveda. Some references indicating cancer are found in Ayurveda classical texts. 'Cancer' is well researched and documented in conventional medicine. The disease condition of the patient needs to be understood individually while treating with Ayurvedic perspective.

## Causes

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### Pollution, tobacco and alcohol:

In India, the pollution can be a major cause for cancer. The air, water and soil are polluted due to urbanization, pollution from factories, plastic wastes etc. In addition to this, addictions like tobacco chewing, smoking and alcohol also are known potent causes for cancer.

### Diet:

The most important cause originates from the food. The body is made from food materials, and diseases also originate from food. Hybridization, chemical fertilizers, pesticides etc. brought major change in farming. Hybridization is the main culprit. Mutated genes in seeds along with chemical fertilizers can cause cancer. This emphasizes the need for use of indigenous or local (desi) seeds and cultivation.<sup>[2]</sup>

The effect of cooking gas, refrigerators, mixer grinders, microwaves etc. which are in daily use, is not very well studied in changing the quality of food. The use of bakery products is also increased and their effect on health is also ambiguous. The food habits are drastically changed from natural, traditional food to unnatural/junk/fast food, deep fried items, preserved food, cold drinks etc. The intake of food also changed. The food taken by watching TV also have a negative impact. One should concentrate mind and all senses while eating. These dietary factors can lead to cancer like other diseases as observed in many patients.

### **Lifestyle:**

Improper lifestyle is one of the biggest and important cause for cancer. Ayurveda science emphasizes the importance of waking up early in morning. Timely and proper sleep, early and light to digest food at night are prerequisites to get up early morning. One should not eat if there is indigestion. All these are known facts, but rarely followed nowadays. Late night dinners, late sleeping habits are the causes for diseases including cancer.

### **Clinical features**

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The general signs and symptoms in cancer are as below :<sup>[3]</sup>

- Fatigue
- Lump or swelling in the affected body part
- Unintended weight loss or gain
- Change in color and complexion of skin, non healing wounds, changes to existing moles
- Changes in bowel or bladder habits
- Persistent cough or dyspnea
- Dysphagia
- Hoarseness of voice
- Persistent indigestion or discomfort after eating
- Persistent, unexplained muscle or joint pain
- Persistent, unexplained fevers or night sweats
- Unexplained bleeding or bruising

### **Types of cancer**

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There are four major types of cancer:

**1. Carcinomas:** It is most common type of cancer. It begins in the skin or epithelial tissue. These usually form solid tumors. E.g. prostate cancer, breast cancer, lung cancer, and colorectal cancer.

**2. Sarcomas:** Sarcoma begins in the connective tissues like fat, muscles, nerves, tendons, joints, blood vessels, lymph vessels, cartilage, or bone.

**3. Leukemias:** Leukemia, a cancer of the blood, shows uncontrolled growth of blood cells. The 4 main types of leukemia are acute lymphocytic leukemia, chronic lymphocytic leukemia, acute myeloid leukemia, and chronic myeloid leukemia.

**4. Lymphomas:** Lymphoma begins in the lymphatic system, that fights infection. There are 2 main types of lymphomas: Hodgkin lymphoma and non-Hodgkin lymphoma.<sup>[4]</sup>

### Diagnosis

The definite diagnosis of cancer is done only after invasive tissue biopsy. No noninvasive diagnostic test is sufficient to define a disease process as cancer.<sup>[5]</sup> Staging of cancer is done by a specific system called TNM (tumor, node, metastasis) system codified by the International Union Against Cancer and the American Joint Committee on Cancer. This classification is an anatomically based system that categorizes the tumor on the basis of the size of the primary tumor lesion (T1 -4, where a higher number indicates a tumor of larger size), the presence of nodal involvement (usually NO and N1 for the absence and presence, respectively, of involved nodes, although some tumors have more elaborate systems of nodal grading) and the presence of metastatic disease (MO and M1 for the absence and presence, respectively of metastases).<sup>[6]</sup>

### Approach towards treatment of cancer through Ayurveda

When a patient suffering from cancer comes for Ayurveda therapies, there are two approaches towards it:

1. Ayurveda therapies with conventional medicine, can be named as 'integrated approach'
2. Only Ayurvedic therapy without any conventional medicine

### Advantages and disadvantages

There are certain advantages and disadvantages for both these approaches.

### Integrated approach

- In this approach, the diagnosis of cancer as per conventional medicine is accepted with its prognosis. Knowledge of experiences from Oncologists can be obtained to understand stages and prognosis.

- The concepts from conventional medicine are correlated with Ayurvedic concepts. For e.g. multiplication of cells is associated with functions of reproductive fluid (shukra dhatu) and essence of all body tissues (ojas). Regeneration capacity is attributed to shukra. The main function of shukra is the regeneration of all body tissues or multiplication of cells. [A. Hr. Sutra Sthana 11/4]<sup>[7]</sup> This is very well established in the treatment of wounds. [A. Hr. Sutra Sthana 29/33]<sup>[7]</sup> This same principle can be applied while understanding pathology of cancerous growth.
- In leukemia, when white blood cells count goes very high, it is considered as the growth of immature cells. This can be understood in terms of decreased metabolism at the level of body tissues (dhatuagnimandya). [A. Hr. Sutra Sthana 11/34]<sup>[7]</sup>
- Based on the progress of disease, Ayurvedic prognosis can be judged and treatment is planned. In a cancer patient, liver and spleen was involved. The liver was palpable for 8 fingers and spleen 4 fingers and was stony hard. Milk diet and copper (tamra) and diamond (hiraka) basma was prescribed. The patient responded well. After 1 month the spleen was not palpable and liver was palpable for 4 fingers. In the etiology of pleehodara, Charak opines that morbidity of rasa and rakta in turn cause enlargement of spleen.[Cha.Sa.Chikitsa Sthana 13/36-37] The portion of body tissue (dhatu ansha) of muscle tissue (mamsa), fat (meda) and bones (asthi) may get diverted to blood (rakta) and results in disease in the process of transformation (dhatu agnivyapara). The treatment is changed to milk and ghee processed with *Tinospora cordifolia* (guduchi) to correct the same.

Thus the integrated approach includes knowledge sharing of allopathic and ayurvedic system of medicine.

### **Disadvantages of integrated approach**

- If the base of modern medicine changes drastically, the Ayurvedic concept based on those concepts will have no value.
- More over this approach ultimately leads to cessation of Ayurvedic way of thoughts. If we are carried away by the modern medicine diagnostic methods, then that is a very big loss to Ayurveda. As Ayurvedic practitioners, diagnosis of condition in Ayurvedic way is moral responsibility.

### **Ayurvedic approach**

- The disease is evaluated based on nidanapanchak perspective. This is little bit tough task.
- Cancer can be considered as single or multiple entity as per Ayurvedic texts.
- Consideration of cancer as local or systemic or systemic with local manifestations is tricky in diagnosis and assessment.

For example, in a case of malignant melanoma, the first mole is removed and found that it is malignant. The doctors went on removing the malignant moles. After removal of fifth mole, there was a spread all over the body. There were more than 300 moles and grown to the size of coconut and was oozing, having foul smell and severe pain. In many breast cancer patients, it is observed that after magnetic resonance imaging (MRI), the disease spreads faster. So such conditions cannot be limited to a local disease. This is both systemic and local. So the surgery or radiation might not be always the best possible solution for this. Ayurvedic approach to treat origin of disease (utpattisthana) with site of manifestation (vyaktisthana) is advantageous in such cases.

### **Disadvantages of only Ayurvedic approach**

- Ayurvedic doctors are comparatively less experienced to treat cancer patients than an oncologist. This lack of experience may lead to improper judgment regarding prognosis.
- The Ayurvedic perspectives and views are difficult to explain to the modern world. It might not be possible to find out a single anti-cancer drug.

### **Patient centric appropriate approach**

Considering both approaches, a patient centric approach for the benefit of his health needs to be developed. Appropriate approach is to take advantages of experiences of modern medicines to know signs and symptoms, causative factors and prognosis of disease, and consider them on Ayurvedic grounds. Modern physics has provided variety of techniques like X-ray, CT scan etc. to overcome the hurdles of limitation of human sense organs. The interpretation of results of these techniques must be done in Ayurvedic terminologies.

For Ayurvedic treatments, Ayurvedic diagnosis is a must. Diagnosing in conventional methods and going for Ayurvedic treatments is not the correct way. For Ayurvedic treatment we should know about the dosha, dhatu, agni, bala etc. of the patient. The current treatment protocol is focus only on cancer. Other important factors involved in pathogenesis like the cause, the season etc. are not considered in treatment. In hot season, chemotherapy and radiation might not be suitable. This causes more harm to patient than benefit leading to deterioration of health at the cost of treatment of disease. Generally in advanced stage of cancer, the patient will be in depressed state of mind. Depression itself is aggravator of all diseases. [Cha.Sa. Sutra Sthana 25/40] Therefore, boosting positive thinking is essential for the patient.

### **Challenging social aspects of Ayurvedic treatment of cancer**

The patients generally are in doubt about the efficacy of Ayurvedic treatment especially regarding the diet. The patient won't hesitate to undergo radiation as it is a conventional treatment, but when complete milk diet is advised, they raise questions about their survival. The society believes that only conventional medicine is scientific and all other traditional treatments including Ayurveda is not scientific. Even after cure through

Ayurvedic treatment, they believe that it was his destiny and not the scientific nature of Ayurveda treatment. This social stigma needs to be considered to improve acceptance of Ayurveda as to provide better health and quality of life in cancer patients. When a cancer patient comes for Ayurvedic treatment the following points need to be considered. Usually they are in advanced stage and generally incurable. The life span is very less. Along with the symptoms of the disease, the symptoms due to chemo or radiotherapy also should be considered. The economical condition may also be poor. Ayurveda treatments, if started in initial stage, might prove better efficacy with affordable healthcare.

### **Objectives of Ayurvedic treatment of cancer**

- Pain relief
- Improve the quality of life
- Extend the life span as much as possible
- Try to cure
- Try to prevent the recurrence

Disease free interval with a good quality of life should be the goal of treatment. The goals can be achieved by following methods.

### **Cause oriented treatment (hetu-pratyanika chikitsa):**

Tobacco, stress, psychological shock, improper food habits, surgery, FNAC, biopsy, heredity etc. are common causes. Avoidance or removal of causative factors is the foremost treatment of a disease. [Su.Sa. Uttar tantra 1/25]<sup>[8]</sup> For that, in Ayurvedic perspective, the causes of cancer shall be elucidated. If cause is known, etiopathogenesis (samprapti) also can be judged and treatment can be decided.

### **Avoiding the causes and reversing their effect**

Emphasizing on the use of desi cow (A2) milk with natural/organic food only is a primary and important requirement. Only natural and organically grown farming was in practice for thousands of years, till last 4-5 decades. Returning to natural food is most important to regain health. Intake of milk and ghee is considered as most important rejuvenator (rasayana). So only desi cow milk and ghee should be used for this purpose. [Cha.Sa.Sutra Sthana 25/40] If the food is proper, then the tissues formed from this food won't have any abnormalities.

### **Treatment**

Detoxification with panchakarma in tobacco addicted patients is advised. Pouring medicated liquid over forehead (shirodhara), counseling, yoga and massage are advised for patients having stress and psychological shock. Life style correction including food habits for improper food habits is important.

spiritual therapies (adidaivika treatment) for those who are having bad destiny. I had a recent case of cancer for a 3 ½ year old child. Alpha fetoprotein was 57000 units. How a child at this age get cancer? Here we have to think about the past life (purvajanma) of patient and should treat accordingly.

### **General guidelines for the treatment of cancer**

Drugs which purifies the reproductive fluids (shukra shodhanagana drugs) [Cha.Sa.Sutra Sthana 4/12] are used for the treatment of cancer, since vitiation of reproductive fluid (shukra dushti) happens as a result of intake of hybridized foods. The hybrid grains can cause vitiation of reproductive fluid shukra.

Sepia Officinalis (samudraphena) and Myrica Nagi (katphala) is generally used for cancer treatment. When there is vata and blood (rakta) involvement, the drug of choice is Asteracantha Longifolia (ikshuraka). If there is predominance of pitta, Andropogon Muricatus (ushira) is used. Bergenia Ligulata (pashanabeda) is used when hard lumps are present. The drug is selected based on the dosha and dushya involvement. The dushyas involved can be judged based on the vitiation of channels of transportation and transformation (srotodushti) causes, symptoms and the organ involved. For e.g.in lung cancer, involvement of blood (rakta) can be considered since lungs (phuphusa) is originated from blood (rakta). For particular dushyas involved, its specific dhatupachaka medicines should be used. The treatment for chorinic fever (vishama jwara) can be adopted here. The 5 decoctions mentioned for the treatment of five types of vishama jwara can also be used as specific treatments for doshas, if it resides in particular dhatu.<sup>[9]</sup> If rasadushti happens, rasa pachaka medicines can be used. This concept can be applied while treating kushtha, prameha etc.

I used to give heeraka bhasma along with specific dhatupachaka drug.

### **Principles of treatment**

- Nourishment/depletion therapies (santarpana/apatarpana)
- Purification/pacification therapies (shodhana/shamana)
- Disease specific treatments (vyadhipratynika)
- Dosha specific treatments (dosha pratyanka)
- Cause specific treatments (hetupratyanika)
- Symptomatic
- Relieving side-effects of chemo and radiation
- Rejuvenation therapies(rasayana)

### **Nourishing therapies (santarpana treatment)**

**Indications:** Weight loss, emaciation, weakness, stress, depression and anxiety.

**Treatment:** Counseling, only milk diet, medicines like Vasantakusumakara rasa, Asparagus racemosus (shatavari), Pueraria tuberosa (vidari), Withania somnifera (ashwagandha) etc. can be used. Thin gruel (peya)/vegetable soup (yusha)/thick gruel (vilepi) etc. may also be used as santarpana.

### **Depletion therapies (apatarpana treatment)**

Basically cancer is apatarpanajanya disease. So the treatment is light to digest nourishing food (laghusantarpana). However in some cases initially depletion (apatarpana) may be beneficial.

**Indications:** Ama, poor digestion and metabolism (agnimandya), vitiation of vata dosha (vataprakopa) due to obstruction of channels (margavarodha) caused by dosha/tumor.

### **Other treatments**

Mild fasting therapy (langhana) can be done for those who are indicated for nourishing therapy (brimhana).

Improving digestion (pachana), fomentation (swedana), application of medicated paste (lepa), leech application (jalaukavacharana) etc. can be done as per the conditions. Particularly when there is skeletal metastasis, fomentation with bolus of leaves of herbs (patrapotalli sweda) can be done in condition associated with ama (samaavastha). Keeping heated oil over low back (Katibasti) with kottamchukkadi/sahacharadi oil is followed by patrapotalli sweda. Fomentation (seka) can also be done with oil (taila), fermented rice water (kanji) etc. Leech application (jalukavacharana) will help particularly in oral cancers. Where there is a tendency of bleeding the pain gets relieved after bleeding. In a malignant melanoma case, treatment started with leech application and fumigation showed good results.

### **Vyadhi pratynika (disease specific)**

- Diamond powder (Hiraka basma) is used in every patient. It is very safe without any side effects. Dosage is 0.04mg/day.
- Dushya specific dhatupachaka medicines can be given.
- Semecarpus anacardium (Bhallataka) can be used with caution because some patients may get allergic reactions.
- Pippali rasayana can be used. It can be given in escalating dose either from 10 pipers to 100 or from 6 to 60 or 3 to 30. In lung cancer and liver cancer, when there is low digestive power (agnimandya) and in cold season, it is ideal to use.
- Narasinha rasayana is used particularly in lung cancer.
- Copper (tamra) and tin (vanga) is better for vitiated reproductive fluid (shukradushti).

### Dosha pratyanka (dosha specific)

- Bringing vata dosha to its normalcy (Vatanulomana) by pacifying (shamana) or purificatory (shodhana) procedures is most important for dosha pratyanka treatments. In a case of esophagus and stomach cancer, puncture of esophagus and metastasis to right humerus was present. The patient was in agony. Per abdominal examination revealed the presence of fecal matter. The case was admitted and therapeutic enema (basti) was given. When the fecal matter came out, gradually the pain subsided. Within a week, the patient was absolutely pain free. It was a clear case of obstruction induced vitiation of vata dosha (margavarana ganyavata prakopa). We can at least relieve the pain, which is most important.
- Pitta pacifying (shamana) or purification (shodhana) in pitta predominant conditions is advised.
- Kapha pacifying (shamana) or purification (shodhana) in kapha predominant condition is advised.
- Even in acute cases, different therapeutic enemas like anuvasana/asthapana/yapan/uttarabasti can be used. In bladder cancer, enema through urethral route (uttarabasti) is used particularly.

### Symptomatic treatment

**Indication:** Treatments can be given based on the symptoms of disease, symptoms due to chemotherapy and radiation, depression and fear.

**Treatment:** Symptoms like pain, constipation, loose motion etc. should be treated. For adverse effects of chemotherapy such as nausea, vomiting etc. kamadugha, Cynodon dactylon (durva) etc. can be used. For adverse effects of radiation like burning sensation, ghee, Aloe vera (kumari) and Cynodon dactylon (durva) can be used. Aloe vera (kumari) is a better choice since it is cold in potency, rejuvenating rasayana, good for liver and lungs and is easily available. To combat, fear and depression food/medicines which increases the essence of all body tissues (ojo vardhaka) can be given. E.g. milk

As rejuvenator (rasayana) only milk diet can be advised. The patient can take upto 2 liters/day. If the patient continues to take milk, the immunity increases and regression of disease happens gradually. By taking the Ayurvedic medicines, there may not be notable changes in markers and size of tumors. But there will be stagnation of disease progression for a period and later tumor also may get cured. We have some cases in which the tumor gets cured completely. Diamond powder (Hiraka bhasma), bhallataka rasayana, vardhamanapippali rasayana and chyavanaprasha also can be given.

### Holistic approach

For treating cancer, we need a holistic approach that includes Ayurveda, Yoga, counseling, massage, and lifestyle and diet management. Before advising surgery, the status

of shukra and ojas shall be considered. If the patient is above 70 years of age, it's better to avoid biopsy or FNAC. If some markers are available to diagnose that is fine. FNAC and biopsy may disturb the whole equilibrium of tissues. Even if, it is confirmed that aggressive management with chemotherapy and radiation is not possible at this age. There is no meaning to diagnose and leave the case. For them, it is better to start Ayurvedic treatments that can improve quality of life.

### Case studies

A case of CA bladder with muscle invasion, advised for bladder removal was treated with oral medication and uttarabasti. Avapeedaka snehapana was also done considering suppression of urine as one of the causative factor for disease. Further spread of disease was arrested and could retain the bladder also. Since last 21 years, the person is completely disease free.

A 57 year old renal cell carcinoma patient, treated with only milk diet for 9 months. For three years, the general condition was satisfactory. Kidney started functioning but he developed hydronephrosis due to ureteral obstruction. This was misunderstood by patient as aggravation of disease, which led to depression. The patient suffered from brain metastasis and hemiplegia, making the condition worse and the patient died. However, the patient survived for three years due to Ayurveda treatments.

Another patient had the symptoms of hyperacidity and stomach ulcer. Underwent surgery for that and was revealed as CA stomach. Subtotal gastrectomy was done. The chance of survival was only for 2 months. Then the patient came to me and I kept him on milk diet. He used to consume 2 liters of milk a day. There was weight gain and restoration of normal activities. After six months, the patient started vomiting without pain. So he is referred back to surgeon for resecting the adhesions. The patient further survived for one more year.

A patient aged 50 years, was unconscious, primary focus unknown and secondaries in liver and lung. His bilirubin level was 32 mg/dl and was in intensive care unit (ICU). Supplementary oxygen and intravenous fluids were given. Life expectancy was only few hours. Relatives of the patient requested me to see the patient and on their compulsion the patient was shifted to a smaller hospital. Instead of ICU, patient was admitted in a special room. Along with oral medication, scum of gruel prepared with fried paddy (lajamanda) and green gram soup (mudgayusha) was started. Even though the intake was less, it was possible to stop saline and oxygen supply. After that cassia fistula (aragwadha) and a combination of Terminalia chebula (haritaki), Terminalia bellirica (vibitaki) and Phyllanthus emblica (amlaki) (triphala) was used for mild purgation (mridu stramsana). After passing 5 to 6 loose bowels, the patient became semi-conscious and could recognize some relatives. Bilirubin came down to 20 mg/dl. But still hallucinations were present. He

died after 6 days. During these 6 days, the quality of life of that patient improved and could provide economical treatment.

### **Importance of concept of health**

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- Health can neither be sold nor purchased.
- It has to be achieved, maintained and enhanced, through proper means, by an individual.
- Investing in health has multi-faceted benefits, in the form of strength, vigor and vitality, protecting us from diseases and moreover making the life meaningful through achievement of four objectives of life (purushartha).

The pharmaceutical companies, hospital management groups, and insurance companies control the whole world of so called health industry today! Unhealthy society is the bread and butter of these three. Insurance companies taking advantage of fear psychosis are compelling people to go for health insurance.

### **Real reason behind illness**

- For last 4-5 decades, we have gone away from natural farming.
- Hybridized seeds and animals have started giving rise to unnatural mutations leading to diseases like Cancer.
- Farming is further worsened by poisonous pesticides and fertilizers.

### **Need for holistic efforts for cancer:**

The number of cancer patients are increasing worldwide. Cancer leads to untimely painful miserable death. In most of the cases, the diagnosis is made only in advanced stages. There are limitations to treat this condition. The side effects of existing treatments are too hazardous for health. The psychological factors like fear, depression, stress etc. aggravates the disease.

### **Needs to be addressed:**

- Prevention of secondary onset of the disease and primary onset in next generation or cancer prone people.
- Provide safe and cost effective treatment.
- Better quality of life should be assured in advanced stages.
- Holistic approach with positive changes in lifestyle as a whole.
- Change in mindset of the patients and society.
- Early detection of disease or proneness to disease for better prognosis.

**Solution:**

- Creating awareness for healthy lifestyle with changes in dietary habits, work schedules, psychological factors, etc.
- Creating awareness also for organic farming, eco friendly environment, etc.
- Correction of lifestyle in all patients of cancer being treated by any medical system.
- Improving mental strength and management of stress, depression with proper counselling and yoga therapy for all cancer patients being treated by any medical system.
- Full-fledged Ayurvedic treatment in advanced cases where conventional treatments have limitations.
- Adjuvant Ayurvedic therapy for better prognosis and better quality of life in other cases being treated by conventional therapy.
- Panchakarma and rasayana treatment for prevention of secondary onset in disease free state and also for prevention of primary onset in their next generation or disease prone people.

**Prerequisites for holistic healthcare unit of cancer**

- Development of full-fledge Ayurvedic treatment unit with Panchakarma facility.
- Formation of support groups for mutual benefits
- Orientation and training of Ayurvedic physicians.
- Development of Ayurvedic medicine store.
- Development of desi cow farm for various cow products.
- Development of medicinal plants garden.
- Development of Ayurvedic Research Wing.
- Set up of Ayurvedic unit with Panchakarma and drug store.
- Commencement of Ayurvedic OPD.
- Separate Ayurvedic IPD care and /or combined IPD care.
- Ayurvedic Research Wing.

**Expected outcomes**

- Better quality of life and prolongation to certain extent.
- Reduction in the side effects of chemotherapy and radiation and their timely completion.
- Change in attitude of the society.
- Spread of message of advantages of collaborative approach across the globe.

## Interaction session

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**Q.** (Dr Samata Lokhande) Please share the experience and prognosis of osteosarcoma

**A.** It is very difficult to treat. The pain factor is very severe. This happens in children at the age of 12 to 18 and the survival rate is also very low. But I have been able to at least give symptomatic relief to some extent and prolong the life with better quality of life. It is very difficult to handle. The condition is very miserable.

**Q.** (Dr Manisha Sharma) If desi cow milk is not available then can we prescribe other milk?

**A.** We have to go for Desi cow milk only. Jersey cow milk is the culprit, it cause cancer. So it cannot be used. Buffalo milk or goat milk are the other options. If these are not available, go for organic foods. That is the only solution.

**Q.** What is the option for milk in cancer patients in case of lactose intolerance?

**A.** Generally it is not found. There can be some problems like flatulence, loose motions, hiccups in some cancer patients with milk diet. This can be treated easily with pippali rasayana or by adding shunti or haridra with milk.

**Q.** (Dr Arpitha Konana) Are gold preparations or suvarna bhasma is useful in treatment of cancer?

**A.** That can be used. I emphasized on hiraka bhasma. There can be other gold preparations like suvarnasutasekara rasa, suvarnamalinivasant rasa etc. if needed. We generally tried to go for siddha kshira, suvarnaguduchikshira. 1 cup of milk, 1 cup of water, 1 golden bangle or ring and guduchi, boil it, reduce to 1 cup. Have that milk as anupana with whatever medicines we are giving. I was using mahakalyanaka grita. But rakta dushya is very commonly seen in most of the cancer patients. So we now prepare raktakalyanakaghrita which raktapachaka and kalyanakaghrita combination. We prepare it by ourself. Every week I require 5 to 10 kgs of ghrita. This is to be given as anupana followed by suvarnaguduchiksheera. That helps better.

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# Acid peptic diseases

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**Website link:**

[https://www.carakasamhitaonline.com/index.php?title=Acid\\_peptic\\_diseases](https://www.carakasamhitaonline.com/index.php?title=Acid_peptic_diseases)

**Youtube link of recorded lecture:** [https://www.youtube.com/watch?v=7bPD\\_nvynnc](https://www.youtube.com/watch?v=7bPD_nvynnc)

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## Introduction

In the present era, the world is changing focus on “preservation of health” rather than treating the diseases. New diseases are emerging day by day in new forms. It is high time to recognize the importance of boosting up the defense mechanism of the body. This helps to resist any kind of adverse circumstances and maintain the proper balance of all the components of health.

Acharya Sushruta’s definition of a “healthy person” (swastha) is the most widely accepted one in Ayurveda.[Su. Sa. Sutra Sthana 15/41]

The physical components of health are listed as the three dosha - (vata, pitta and kapha); the seven body tissues (dhatu); and the excretory functions(mala). Digestive power (agni) is also added with due importance. It indicates that all kinds of “transformation processes”, essential for the maintenance of health are facilitated by the agni from gross to minute level.

Apart from physical health, the pleasant state and harmony of sensual faculties (indriya), mind (manas) as well as spiritual awareness (atma) are also the essential criteria for health. All these components are interrelated and can affect each other's state of well-being.

E.g: mental disturbances or negative emotions can disturb the proper function of digestive power and vice versa. If a person is worried, sad, angry, or emotionally upset, even the wholesome food consumed in proper quantity will not get digested properly.[Cha. Sa.Vimana Sthana 2/9]

### Three categories of agni

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Good health begins in the gut. While explaining the concept of agni, the main form of agni is called as the “jatharagni” (pachakagni) which refers to the digestive enzymes. There are five elemental enzymes (bhutagni) which are the micro-elemental converters, and also the seven corresponding tissue building enzymes (dhatwagni). The digestive enzymes (pachakagni) control the other two kinds of agni that are acting at the level of absorption and metabolism. The term “koshtagni” is used when it deals with the digestive process in the gastrointestinal tract (GIT).

### Agni and patterns of digestion

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When the agni is in the balanced state, it is known as “samagni”. But when it is affected by three dosha, it shows three pathological variations. If there is an excess of kapha dosha, it lowers the power of agni and the condition is known as “mandagni” (slow digestion). When pitta is in excess form, the agni becomes “teekshnagni” (fast/quick digestion). It can digest anything and everything and when the food is not available, it starts digesting the tissue elements (dhatu). For example, in thyrotoxicosis the hyperactivity of the thyroid gland causes high basic metabolic rate (BMR) and cachexia develops. When the agni is affected by vitiated vata, it becomes “vishamagni” (irregular digestion). As vata has catalytic action (“yogavahi”), if it interacts with kapha, it will enhance the activity of kapha and if it interacts with pitta, it enhances the activities of pitta.

Ultimately, the impairment of agni leads to improper digestion leading to the process of fermentation and putrefaction, and then, there is the production of toxic metabolites called “ama”. These toxic metabolites are the main cause of all the disease conditions. All diseases arise from the lowered activity of agni.i.e “mandagni” [A.Hr. Chikitsa Sthana 12/1].

So, good or bad health begins in the gut and the treatment is focused on the measures for maintaining the health of digestive power (kayagni), thereby eliminating all the diseases of the whole body. This is the first branch of Ayurveda called “Kayachikitsa’.

### The concept of digestion in Ayurveda

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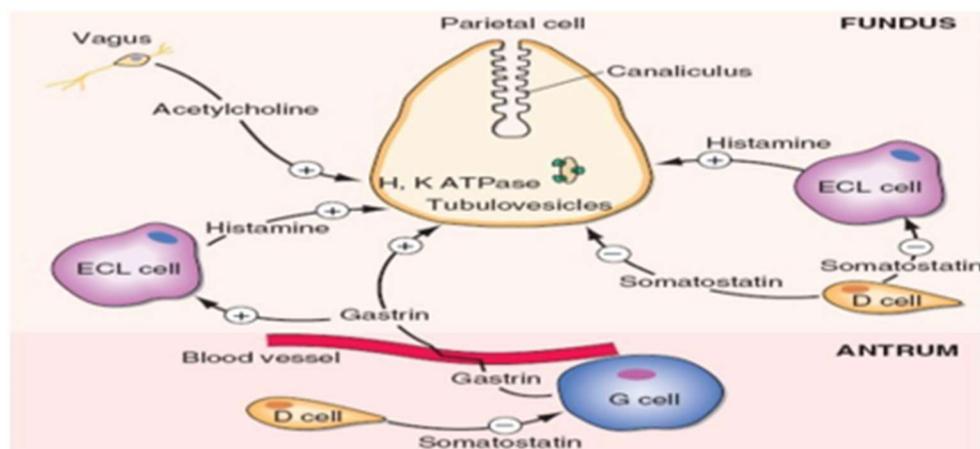
The whole digestive process in the gut starts right from the mouth, where there is the action of “bodhaka kapha” to start the process of digestion. Then it goes to the stomach (amashaya) where it is subjected to the action of “kledaka kapha” for adding the moisture content (kleda) to the food material. Subsequently, from the stomach (amashaya) it goes into the portion of the small intestine called “grahani” which is the seat of “pachaka pitta”. The 6th internal layer called “pittadhara kala” is also situated there. The main process of digestion occurs in this portion of the gut. It is followed by caecum (unduka) and large intestine (pakwashaya) where the separation of essence (sara) and excretory materials (kitta) occurs with the help of “samana vayu” which leads to the absorption and

assimilation of nutrient portion and excretion of the waste products in the form of faeces (purisha) and urine (mutra) with the help of “apana vayu”.

Here, the “kledaka kapha” can be represented in the form of mucin, which moistens the food materials and loosens its molecules. It buffers the action of the strong acid and inhibits the action of pepsin. It provides a protective layer to the stomach wall to prevent the corrosive effect and its digestion by pepsin. So, the functions of “kledaka kapha” are reflected mainly through the functions of mucin.

The action of kledaka kapha is also executed by the following secretions in the gut.

- Serous & mucous secretions of salivary glands & esophagus.
- Mucous secreted by mucous glands of surface mucous cells and mucous neck cells of the stomach.
- Mucous and bicarbonate ions secreted from bruner's gland of the small intestine.
- Bicarbonate ions secreted from the duct of pancreas.
- Alkaline mucous secretion by Brunner's glands in the duodenum.
- Mucous secreted by goblet cells that lubricate the intestinal surface.
- Water & electrolytes secreted by enterocytes of the small intestine.
- Mucous secreted by epithelial cells of crypt's of Liberkuhn of the large intestine.



**Image 1: Secretion of HCL**

“Pachaka pitta” represents the digestives enzymes like trypsin, chymotrypsin, carboxypolypeptidase, pancreatic amylase, pancreatic lipase, cholesterol esterase,

phospholipase, salivary amylase, maltase, lingual lipase, pepsin, gastric lipase, gastric amylase, gelatinase, urase, etc.

It digests the food, separates the waste and nutrients from it, and supports the other forms of pitta located in different parts of the body.

The third most important component of the digestive process is “samana vayu” which represents the regulation of the enteric nervous system, the sympathetic and parasympathetic supply of the autonomic nervous system.

The action of "samana vayu" can be partially understood by the regulation of the secretion of HCL by parietal cells. The activities of the vagus nerve, the amount of gastrin from G cells and somatostatin from D cells, and the level of histamine play a vital role in this process.

### **Acid-Peptic Diseases**

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Acid peptic disorders include many conditions whose pathophysiology is directly related to the damage caused by acid and peptic activity of gastric secretions. It includes gastroesophageal reflux disease, peptic ulcer (gastric and duodenal), and stress-related mucosal injury. In all these conditions, mucosal erosions or ulcerations arise when the caustic effects of aggressive factors overwhelm the defensive factors of the gastrointestinal mucosa.

### **Aggressive and defensive Factors**

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Here, the aggressive factors represent the acid, pepsin, bile salts, drugs (NSAIDs), and H. pylori and the defensive factors are represented by mucus, bicarbonate layer, proper blood flow, cell renewal prostaglandins, and phospholipids.

So, the therapy is directed at enhancing host defence or eliminating aggressive factors including Helicobacter pylori. In short, the imbalance between aggressive factors (pachaka pitta) and defensive factors (kledaka kapha) leads to acid peptic diseases.

### **Vitiation of Agni (Agni dushti) and Acid peptic disorders**

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For maintaining health, agni should be in its balanced state, i.e. “samagni”. All other states of agni leads to acid peptic disorders. Improper dietary habits cause vitiation of agni, which leads to the process of fermentation of food material and ultimately it forms the toxic material called “amavisha”. It leads to “indigestion” (ajeerna) by vitiating the dosha. Continuous indulgence in improper diet and erratic lifestyle aggravates pitta dosha. This leads to an acute condition of “vidagdhajirna”. This is converted into different acid-peptic disorders like gastritis, gastro-oesophageal reflux disease(amlapitta), duodenal ulcer (parinama shula), gastric ulcer(annadrava shula) etc.

## Vidagdhaeerna and Amlapitta

The clinical diagnosis of “vidagdhaeerna” is based on the symptoms like sour eructation, burning sensation, giddiness, thirst, and sweating. In case of “amlapitta”, the symptoms are indigestion, nausea, sour/bitter eructation, burning sensation in oesophagus, epigastric region, anorexia, and abdominal heaviness. Many of the clinical researches on “amlapitta” had revealed that hyperacidity might not be an essential finding in all the patients with the symptoms of “amlapitta”. Many of them can be normosecretors. Some may be hypersecretors as in the case of “hyperchlorhydria” and some may even be hypo-secretors as in the case of hypochlorhydria. For proper digestion, an appropriate pH is essential which is usually acidic in the stomach. A delayed gastric emptying time leads to fermentation of food, producing organic acids as seen in conditions like gastroparesis (alaska - vilambika), whereas rapid gastric emptying acidifies the medium of gut. These states are seen in “amlapitta” and related diseases. Here, mucosal resistance is very important. The abnormal acid medium erodes the mucous lining of the concerned segment of the gut leading to painful conditions of the upper abdomen like gastric ulcer (annadrava shula) and duodenal ulcer (parinama shula). So, where aggressive factors are dominant, like in hyper-secretors, it leads to duodenal ulcer (parinama shula). Where there is the weakness of defensive factors, like in hypo-secretors or normo-secretors, it leads to the gastric ulcer (annadrava shula). So, it is better to consider amlapitta as a syndrome (acid reflux syndrome) rather than a particular gastrointestinal disease. It closely resembles gastritis, non-ulcer dyspepsia, hyperchlorhydria as well as hypochlorhydria and in the chronic stage, it may lead to gastric ulcer.

## Gastritis

Gastritis is a clinical condition with upper abdominal discomfort like indigestion or dyspepsia in which specific clinical signs or radiological abnormalities are absent. It is of two types- acute gastritis and chronic gastritis.

### Acute gastritis

For acute gastritis, there are many causative factors including diet and personal habits like consumption of highly spiced food, excessive alcohol consumption, heavy smoking, infections like H. Pylori, viral hepatitis, drugs like NSAIDs, aspirin, chemotherapeutic agents, severe stress including emotional factors like anger, shock, resentment, trauma, surgery and excessive burn. Due to these stress factors and smoking habits, the tracheobronchial tree of the person becomes hypersensitive and there will be increased secretion of acetylcholine, catecholamines, and histamine. This leads to hypersecretion of HCL from parietal cells due to hyperstimulation of vagus and increased secretion of gastrin. It makes the person more prone to acid peptic disorders.

It is better to take advantage of recent technologies for finding out the exact cause of the condition. If the conventional Ayurvedic treatment is not giving the desired result, we should explore the other possibilities like H.pylori infection and treat accordingly.

### **Principles of treatment in acute gastritis**

- The related organ, stomach (amashaya) should be given due importance. ( amashaya vishesha chikitsa)
- Drugs that reduce the penetrating power (tikshnatva) and fluidity (dravatva) of pitta i.e, drugs having a bitter taste (tikta rasa) and dry (ruksha) nature should be used to counteract these properties respectively.
- Improving the quality of digestive power (agni deepana)
- Mild purgation (mridu virechana)
- Medicated enema containing milk (kshira basti)
- The formulations like Guduchyadi Kashayam, Patoladi Kashayam, Avipattikara churna, combination of Narikela lavana and Yashti churna are effective medicines in this condition.
- It is better to avoid fermented preparations (asava & arishta)

### **Chronic gastritis**

Recurrent attacks of acute gastritis may result in chronic gastritis.

It is classified into,

- Type A gastritis (Autoimmune gastritis)
- Type B gastritis (H. Pylori related)
- Type AB gastritis (Mixed gastritis, environmental gastritis, chronic atrophic gastritis)

### **Type A gastritis – Auto immune gastritis**

It mainly involves the body-fundic mucosa and is called autoimmune gastritis and is usually associated with other autoimmune diseases such as Hashimoto's thyroiditis and Addison's disease. Antibodies against parietal cells and intrinsic factor cause depletion of parietal cells and this leads to the impaired secretion of intrinsic factors. Ultimately, these changes may lead to significant gastric atrophy.

**Type B gastritis (H. Pylori infection)**

It mainly involves the region of antral mucosa and is the common type. It is also called hypersecretory gastritis because of excessive secretion of acid due to H. Pylori infection. It is usually associated with peptic ulcer.

**Type A B gastritis (Mixed / Environmental / Chronic atrophic gastritis)**

It affects the mucosal region of the body of the stomach-both fundic and antral parts. It is the most common type of gastritis affecting all age groups. It is also called environmental gastritis because a number of unidentified environmental factors have been implicated in etiopathogenesis.

In its advanced stage, there is progression from chronic superficial gastritis to chronic atrophic gastritis characterized by mucosal atrophy and metaplasia of intestinal or pseudopyloric type.

**Principle of treatment of chronic gastritis**

For treating the chronic gastritis, the principle of treatment of “vata-pitta dominant gulma” is recommended. It includes protecting the kapha, which is the defensive factor. Here, the measures to reduce the penetrating power (tikshnatva) of pitta should be administered, followed by healing or soothing type of medicines (ropana chikitsa). The combination of Glycyrrhiza Glabra (yashtimadhu), Asparagus racemosus (shatavari), Phyllanthus emblica (amalaki) with ghee and honey is best for healing action. Drugs with bitter (tikta) or sweet (madhura) tastes (rasa) are preferable here. Ghee or milk preparation processed with these kind of drugs are also advisable.

The psychological component should also be addressed with equal importance because stress plays an important role in this condition. If a person’s mental status is not positive, it may lead to indigestion.

In the second line of treatment, mild purgation therapy (mrudu virechana) can be given. It is better to avoid the ready-made decoctions (kashayas) in bottles because the preservatives added to them can worsen the condition. Medicated ghee preparations are better to be prescribed.

Formulations like avipattikara churna, sitopaladi churna, yashtitriphala churna, dadimadi ghrita, shatavari ghrita, guduchyadi ghrita, ashwagandha mahatiktam ghritam are effective in this condition.

**Gastro-esophageal reflux disease (GERD)**

Due to decreased tone of lower oesophageal sphincter, the gastric contents get regurgitated frequently into the oesophagus. It causes damage to the mucous membrane of oesophagus and lead to esophagitis. The risk factors for this condition include obesity, fat-rich diet,

caffeine, alcohol, smoking, and the symptoms are heartburn, regurgitation, and dysphagia. It can be diagnosed on the basis of clinical symptoms, 24 hour pH monitoring, endoscopy, and biopsy.

### **Line of treatment of GERD:**

“Amlapitta chikitsa” and “pittaja udavarta chikitsa” are recommended here. “Ama pachana” and “Vata anulomana” are the principles to be followed.

As vitiated vata is responsible for the opposite (upward) movement of gastric contents, measures to pacify vata and establish its natural downward movement (vatanulomana) is to be administered. Drugs that alleviate pitta and kapha, that dries up the moisture content (kledahara), and have a bitter taste (tikta rasa) predominantly are used here.

As the second line of treatment, drugs having a sweet taste (madhura rasa) are also prescribed.

In this condition, mild therapeutic emesis (sadyo vama), mild therapeutic purgation (mrudu virechana), medicated enema containing milk (kshira basti) are also recommended. It is better to avoid fermented preparations (asava & arishta).

Avipattikara churna, vaishvanara churna, yashtimadhu churna are effective in this condition. After curing symptoms, ghee-based preparations (ghrita kalpana) like dadimadi ghrita, mahatiktaka ghrita, etc. should be prescribed for avoiding recurrence.

In the last phase, drakshadi lehya, dashamula haritaki avaleha, kushmanda rasayana, kalyana gud and shatavati gud are advisable.

Pravala bhasma, shankha bhasma and narikela lavana, act as good antacids. Kamadudha rasa, pravala panchmruta rasa, sutashekhara rasa are very effectively used in this condition.

The main thing is the modification of dietary and personal habits. It is better to avoid hot and spicy foods, excessive use of pungent, sour, and salty food, fried items, curd, mustard, and sour fruits in the diet. It is recommended to avoid alcohol consumption, smoking, and regular intake of coffee.

### **Peptic ulcer**

It includes both gastric ulcer and duodenal ulcer formed due to the imbalance of aggressive factor and defensive factor as discussed earlier. Eating worsens the symptoms of gastric ulcer and improves the symptoms of duodenal ulcer. Hunger pain is observed in duodenal ulcer. The diagnosis is based on endoscopy. For detection of H. pylori, “rapid urease test” or “clo test” is performed. Biopsy is done to exclude possibility of cancer. In the management, high dose of proton pump inhibitors is given in conventional medicine.

**Gastric ulcer (annadrava shula)**

In this condition, there is continuous severe pain not subsiding in any stages of digestion like after digestion or during digestion, whether at empty stomach or after taking food. It is relieved only after vomiting out the accumulated pitta. [M. Ni. Shula Nidana]

**Duodenal Ulcer (Parinama shula)**

Vata vitiated due to its causative factors, gets mixed and blocked by morbid pitta and kapha. It causes severe pain (shula), which is known as “parinama shula”.

Excess pitta or acidic secretions damage the mucous layers (kapha) of the duodenum. The mucous layer sheds from its place and gets admixed with pitta (acids). Since the mucous layer forms a buffer and protective sheath of the intestines, shedding of the mucous membrane (kapha) leads to the formation of ulcers or sores in the intestinal mucosal walls. This is the stage of ulcer formation.

The vayu gets aggravated and causes severe pain. This may be correlated with the irritation of nerve fibers at the region of sores. When the acidic food from the stomach enters the duodenum for further digestion, it corrodes and irritates the sores causing severe pain during the process of digestion. The pain remains until the acidic food is pushed forward from the duodenum or until the afflicted person consumes food.

In vata predominant type of duodenal ulcer, abdominal distension, gurgling sound, and non-passage of stool and urine are the main symptoms. It is relieved by the use of unctuous and hot substances.

In pitta predominant type, there is excessive thirst, burning sensation, restlessness, and sweating. It is aggravated by the use of a spicy, sour, and salty diet. The pain is relieved by the use of cold articles.

In kapha predominant type, vomiting, nausea, disorientation are the main symptoms. Mild pain persists for a long time and relieved by pungent and bitter foods.

In case of peptic ulcer, rice, bean, salt, sour food articles, and condiments should be avoided. Milk, banana, and coconut water are advisable.

**Principles of treatment of peptic ulcer**

As the first line of treatment, drugs having predominantly bitter taste (tikta rasa) and inducing dryness (ruksha) are used.

In the second phase, drugs with sweet taste (madhura rasa) and bitter taste (tikta rasa), and medicated milk preparations are used.

In the last phase, medicated milk processed with drugs having sweet and bitter tastes is preferred. It is added with mental-health promoting (medhya) drugs. Avoiding the causative factor is the most important step in treatment. Mild purgation, enema with

medicated milk (kshira basti), pouring of medicated buttermilk on the forehead (takradhara), and anointment of medicated paste on forehead or scalp (shirolepa) are effective procedures in this condition.

In a research work on duodenal ulcer (parinama shula) by Antony Jose & H.M.Chandola (2004), a formulation called "Akshadi churna" [a combination of Terminalia chebula (haritaki), Terminalia bellirica (bibhitaki), Phyllanthus emblica (amalaki) and Piper longum (pippali)] [Chakradatta 27/6] along with ghee preparation called "medhya rasayana ghrita" [a combination of Convolvulus pluricaulis (shankhapushpi), Centella asiatica (mandukaparni), Glycyrrhiza Glabra (yashtimadhu) and Tinospora cordifolia (guduchi)] were used. It showed better results than administering only Akshadi churna. Significant difference was observed in the parameters of Brief Psychiatry Rating Scale. This shows the importance of dealing with the psychic component in this disease.

### **Inflammatory bowel Diseases (IBD)**

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This includes two idiopathic bowel diseases having many similarities but distinctive morphological appearance.

#### **a) Crohn's disease (regional enteritis)**

It affects the segment of terminal ileum and/or colon, though any part of the gut may get involved.

#### **b) Ulcerative colitis**

It is the acute and chronic ulcero-inflammatory colitis affecting chiefly the mucosa and submucosa of the rectum and descending colon. Sometimes it may involve the entire length of the large bowel.

The etiological factors of IBD include genetic factors, immunologic factors, microbial factors, and environmental factors like long-term administration of NSAIDs, psychological factors, smoking, oral contraceptive pills etc. In a genetically predisposed individual, the effect of environmental factors and deranged microbiota, result in dysregulation of mucosal and immune function, which leads to chronic inflammation. It is diagnosed using endoscopy with tissue biopsy, colonoscopy, flexible sigmoidoscopy etc.

Symptoms like the elimination of faecal matter mixed with blood and mucous, having offensive smell are observed with weight loss in patients. These conditions are mentioned in the contexts of raktatisara, tridoshaja atisara and shokaja atisara. These symptoms are similar to IBD.

#### **Principle of treatment for ulcerative colitis**

The treatment protocols of "pittatisara" or "raktatisara", "pitta-kapha grahani chikitsa", "jirna pravahika chikitsa", "adhoga raktapitta chikitsa" are adopted here. Anti-

inflammatory (pakahara and shophahara) and anthelmintic (krimighna) treatments are preferred in cases of ulcerative colitis. Drugs having bitter (tikta) or sweet (madhura) taste, with healing (ropana) property, in the form of medicated milk are recommended here.

In the chronic stage, and if there is excessive blood loss, weight loss, the treatment for anaemia (pandu) and emaciation (dhatukshaya) also should be done.

The decoction preparations like drakshadi kashaya, ambashtadi gana kashaya, mahatikta kashaya, jivaniya gana kshira kashaya, guduchyadi kashaya, musta kshira kashaya etc. and the fermented preparations like lodhrasava, jirakarishtha, kutajarishtha, madhukasava, mustakarishtha etc. are effective in this condition. However, fermented preparations should not be prescribed in the bleeding phase.

Medicines in the powder (churna) form namely dadimashtaka churna, kapitthashtakam churna, laksha churna with honey, lodhra-yashti churna, and pushyanuga churna are effective. Tablets like jatiphaladi gutika and bilvadi gutika are also prescribed.

Medicated ghee preparations like changeryadi ghrita, mahatiktaka ghrita and shatavari ghrita are effective. Buttermilk is a very good remedy to treat this condition. The formulation panchamrita parpati along with butter milk gives excellent relief when administered orally or per rectal route. The other preparations like swarna parpati, rasa parpati, bola parpati, dhatri loha, sutashekhara rasa, punarnava mandura etc. are also used for the treatment of ulcerative colitis.

Medicated milk preparations using Holarrhena antidysenterica(kutaja), Aconitum Heterophyllum(ativisha), Salmalia malabarica (shalmali), Vetiveria zizanioides (ushira), Symplocos racemosa roxb(lodhra), Woodfordia fruticosa(dhataki), and Nymphaea caerulea(utpala)are prescribed. Goat's milk (aja kshira) is especially preferred for consumption.

The medicated enema called "pichcha basti" is observed as very effective in this condition.

### **Irritable Bowel Syndrome (IBS)**

IBS is a psychosomatic intestinal motility disorder presenting as altered bowel habits, abdominal pain, and the absence of detectable organic pathology. Altered bowel habits, i.e. frequent constipation and diarrhea or any one of these two symptoms is observed as the main characteristic feature.

In Ayurvedic parlance, it can be interpreted under the following clinical conditions.

- a. Atisara [Cha. Sa. Chikitsa Sthana 19, Su. Sa. Uttara Tantra. 40 ]
- b. Grahani [Cha. Sa. Chikitsa Sthana.15, Su. Sa.Uttara Tantra 40, A. Hr. Nidana Sthana 8]
- c. Pravahika [Cha.Sa. Chikitsa Sthana 19]
- d. Pakvashayagata vata [Cha. Sa. Chikitsa Sthana 28 /28-29]

Among these conditions, symptoms of vata predominant grahani show more resemblance with IBS. Poor digestion, hyperacidity, roughness in the body and flatulence during and after digestion are observed in this condition. The patient frequently passes stool with difficulty. The consistency of faecal matter is liquid mixed with hard stool, associated with sound and frothiness. [Cha. Sa. Chikitsa Sthana15/6-10]

In pravahika, there is frequent expulsion of stool containing mucus in less quantity accompanied by pain and straining (tenesmus).

Dietary modifications including more dietary fibers, psycho-social therapies, drugs like anticholinergics, antidepressants, antidiarrheals, anxiolytics and those acting on serotonin receptors are being used in the management of IBS. Probiotics have a greater role to enhance or support the bacterial flora in the gut.

### **Principles of treatment of IBS**

The treatment principles of vataja grahani, atisara and pakwashayagata vata are used in the management of IBS. The psychological health component is taken care of by therapies like the pouring of liquid medicines like oil, medicated butter milk etc on the forehead (shirodhara/ takradhara) and anointment of medicated paste on scalp(shirolepa).

Sitz bath with lukewarm medicated water(avagaha sweda), enema using medicated oil or ghee(anuvasana basti) are effective procedures in this condition.

The treatment principles can be divided into two as per the stages or phases:

a) In Diarrhoea dominant stage, drugs having the properties of enhancing digestive power (agni dipana), styptic (grahi), and improving the strength of tissues (dhatubalakara) are used.

b) In Constipation dominant stage, drugs that produce the effects of clearing the minute channels (srotoshodhana), enhancing the digestive power (koshtagnidipana), and promoting the downward movement of vata (vatanulomana) are used.

In the first phase of IBS, mainly medicines in the powder (churna) form or medicated liquids (paneeya kalpana) are used to promote digestive power. In diarrhoea dominant stage, "panchakola churna" and in constipation dominant stage, " vaishwanara churna" are the drugs of choice.

In the second phase, if the person acquires good digestive capacity(agni dipti), medicated ghee (ghritas) and linctus preparation (avaleha) are used. These medicines pacify vata(vatahara) and help to maintain the proper function of digestive fire(agnisatmyakara). For example, dadimadi ghrita or sukumara ghrita mixed with rock salt(saindhava) can be prescribed.

The formulations like brihat gangadhara churna, dadimadi churna, hingvashtaka churna, jatilavangadi churna, kapitthashtakam churnam, chittrakadi vati, changeryadi gutika,

manasa mitra vatakam, parushakadi lehya, kutajadi lehya, panchamrita parpati, kshara parpati, swarna parpati, with butter milk and medicated meat soups are also effective in this condition.

The dietary items like wheat, maize, barley, peas, black gram, soya bean, kidney bean, potato, sweet potato, onion, ground nut, chilly, oily food, chicken, red meat, crabs, mango, pineapple, apple, watermelon, cashew, fig, pumpkin papaya and jackfruit shall be avoided by the patients of IBS.

The diet plan including the use of old rice, gourd, coriander leaves, lentil, green grams soup, black pepper, dried ginger, pomegranate, nutmeg buttermilk, and hot water are suitable.

In a clinical study on IBS, by Raksha Mer & H. M. Chandola (2004), the effect of kutajadi avaleha alone and kutajadi avaleha along with medhyarasayana ghrita was compared. Better results were observed in the combined group. This shows the importance of addressing the psychological component in the treatment protocol.

### **Butter milk - the best medicine for gut related disorders**

Buttermilk has an astringent taste (kashaya rasa) and hot potency (ushna virya). It increases the digestive power (deepana) and absorbs fluid from the stool (grahi). It decreases aggravated kapha and rectifies the digestive process. It's sweet and sour taste do not provoke vata. Its property of "madhura vipaka", does not cause the aggravation of pitta. So, it is best to keep the balance of all the three dosha in gut.

Buttermilk contains all essential macronutrients. It has a cooling effect on the digestive tract. It encourages digestion and treats gut ailments. It is effective against dehydration. It provides calcium without fat and is rich in vitamins, like riboflavin.

### **Rejuvenating (rasayana) drugs for gut health**

Emblica officinalis (amalaki), Eclipta alba (bhringaraja) and Asparagus racemosus (shatavari) are recommended for the health of stomach.

Aegle marmelos (bilva), Holarrhena antidysenterica (kutaja) and Terminalia chebula (haritaki) are the best rasayana herbs for the health of intestine.

### **Summary and Conclusion**

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- Ayurvedic diagnosis of Acid Peptic disorders mainly depends on etiological factors, clinical manifestation of disease (symptomatology), relieving factors (upashaya) and aggravating factors (anupashaya).
- Ayurvedic management depends on the assessment of dominant symptoms, assessment of involved dosha (dysregulation of kledaka kapha, pachaka pitta and

samana vayu) and its dominant properties (amshansa Kalpana), status of agni and ama.

- Drugs that correct ama, optimize agni, regulate samana vayu, pacify aggravated pachaka pitta, protect kledaka kapha, aid digestion, promote smooth transit of food in the gut, integrate intestinal motility are most suitable to treat acid peptic disorders in Ayurveda.
- The principle of treatment includes that of Amlapitta, Annadrava shula, Parinama shula, Atisara & Grahani.
- Modifications of diet, life style and stress management have greater role in their management.
- Integration of tradition and technology is the need of hour.

In present scenario, ancient knowledge shall be enriched with recent updated diagnostic tools to achieve the goal of a healthy and happy life.

### Interaction Session

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**Q:** How to treat H.pylori infection through Ayurveda?

**A.** There is no specific Ayurvedic drug proven for its action on eradicating H.Pylori through any research works. We need to adopt the principles of the treatment of krimi. Many single drugs like Holarrhena antidysenterica (kutaja), Butea monosperma (palasha), Embelia ribes (vidanga) etc. and formulations like krimimugdar rasa, krimikuthara rasa etc. have “krimighna” properties. If we make some combinations of these and try, it can have good results along with the amlapitta chikitsa.

**Q:** Usually in acid-peptic diseases, asava- arista preparations are not prescribed. But in the management of ulcerative colitis you have mentioned some asava- arishta preparations. Can you elaborate on the concept a little further?

**A.** There are a lot of differences in preparation of asava -arishta in traditional method of fermentation and the one which is followed in the current era. The readymade preparations available nowadays can cause undesirable effects especially in the condition of acid peptic disorders. But if they are prepared in the traditional method, and used judiciously, it can give good results.

# Obesity and Metabolic Syndrome

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Website link:

[https://www.carakasamhitaonline.com/index.php?title=Obesity\\_and\\_Metabolic\\_Syndrome](https://www.carakasamhitaonline.com/index.php?title=Obesity_and_Metabolic_Syndrome)

Youtube link of recorded lecture: <https://www.youtube.com/watch?v=LZ64oSsbBc4>

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## Principles of Diagnosis and Management of Metabolic syndrome and Obesity in Ayurveda

This article is based on lecture delivered by Dr. Mukund Sabnis in Prof.M.S.Baghel Memorial Lecture Series on May 09, 2021.

Metabolic syndrome is a group of several cardiovascular risk factors like insulin resistance, obesity, atherogenic dyslipidemia and hypertension. These conditions are interrelated and share underlying mediators, mechanisms and pathways. There has been recent controversy about its definition and its utility. Metabolic syndrome is not an ultimate diagnosis. Metabolic syndrome is a subgroup of patients with shared pathophysiology who are at high risk of developing cardiovascular disease and type 2 diabetes. Pathophysiology and disease pathogenesis can be better understood by observing the clinical features of metabolic syndrome and their interrelation.

Ayurveda has a vast scope in the management of metabolic syndrome. Clubbing of modern medicine concepts with Ayurveda is essential for this. The pathophysiology of metabolic syndrome shall be clubbed with disorders due to overnutrition (santarpanajanya vyadhi) in Ayurveda. [Cha.Sa. Sutra Sthana 23/3-5]

## Definition

**Table 1. Definitions of metabolic syndrome**

	NCEP ATP III (2005 revision)	WHO (1998)	EGIR (1999)	IDF (2005)
Absolutely required	None	Insulin resistance* (IGT, IFG, T2D or other evidence of IR)	Hyperinsulinemia <sup>1</sup> (plasma insulin >75 <sup>th</sup> percentile)	Central obesity (waist circumference <sup>2</sup> ): ≥94 cm (M), ≥80 cm (F)
Criteria	Any three of the five criteria below	Insulin resistance or diabetes, plus two of the five criteria below	Hyperinsulinemia, plus two of the four criteria below	Obesity, plus two of the four criteria below
Obesity	Waist circumference: >40 inches (M), >35 inches (F)	Waist/hip ratio: >0.90 (M), >0.85 (F); or BMI >30 kg/m <sup>2</sup>	Waist circumference: ≥94 cm (M), ≥80cm (F)	Central obesity already required
Hyperglycemia	Fasting glucose ≥100 mg/dl or Rx	Insulin resistance already required	Insulin resistance already required	Fasting glucose ≥100 mg/dl
Dyslipidemia	TG ≥150 mg/dl or Rx	TG ≥150 mg/dl or HDL-C: <35 mg/dl (M), <39 mg/dl (F)	TG ≥177 mg/dl or HDL-C <39 mg/dl	TG ≥150 mg/dl or Rx
Dyslipidemia (second, separate criteria)	HDL cholesterol: <40 mg/dl (M), <50 mg/dl (F); or Rx			HDL cholesterol: <40 mg/dl (M), <50 mg/dl (F); or Rx
Hypertension	>130 mmHg systolic or >85 mmHg diastolic or Rx	≥140/90 mmHg	≥140/90 mmHg or Rx	>130 mmHg systolic or >85 mmHg diastolic or Rx
Other criteria		Microalbuminuria <sup>3</sup>		

\*IGT, impaired glucose tolerance; IFG, impaired fasting glucose; T2D, type 2 diabetes; IR, insulin resistance; other evidence includes euglycemic clamp studies.  
<sup>1</sup>Urinary albumin excretion of ≥20 µg/min or albumin-to-creatinine ratio of ≥30 mg/g.  
<sup>2</sup>Reliable only in patients without T2D.  
<sup>3</sup>Criteria for central obesity (waist circumference) are specific for each population; values given are for European men and women.  
 Rx, pharmacologic treatment.

### Figure 1: Definition of metabolic syndrome

A comprehensive definition of metabolic syndrome and its key features would facilitate research on its causes.[Fig.1]<sup>[1]</sup> It can lead to new insights into pharmacological, and lifestyle treatment approaches. In metabolic diseases, only pharmacological interventions don't give results. Lifestyle management is very much essential with pharmacological interventions.

### Factors in metabolic syndrome

The criteria to define 'metabolic syndrome' includes different parameters like obesity, hyperglycemia, dyslipidemia, hypertension. As per Ayurveda, all the endogenous diseases occur invariably due to the vitiation of vata, pitta and kapha. The diagnosis is made by examining location, signs and symptoms, causes of vitiation of three dosha in any condition. [Cha.Sa. Sutra Sthana 19/5]

### Causes

The causes of all endogenous diseases [nija roga] can lead to metabolic diseases. [Cha. Sa.Sutra Sthana 18/6]

Following factors shall be considered while understanding diagnosis and treatment of metabolic syndrome:

- Role of digestion and metabolism (agni)
- Lifestyle (vihara), including physical activities

- Genetic factors
- Food intake, dietary factors
- Psychological factors
- Ante-natal and post-natal factors
- Iatrogenic factors
- As a complication of other diseases [Cha.Sa.Sutra Sthana 18/6]
- Disorders of Ojas [Cha.Sa.Sutra Sthana 17/76-77]

### **Body frames**

The type of body frame of a patient with metabolic syndrome should be considered. As per Ayurveda obese (sthula), lean (krisha) and medium (madhyama) are the three types of body frames. [Su.Sa. Sutra Sthana 35/33] These are the physiological variations of body frame. As per blood parameters, a thin-built person can also be obese. They are called thin obese patients. There the patient is having adipose tissue (meda dhatu) vitiation. At the same time, an obese patient may not require any treatment because of excellent adipose tissue quality (meda sara). The management also varies according to body frames. Bringing Ayurvedic and modern concepts about metabolic syndrome can make the treatment easy.

### **Quality of body tissues (dhatu sarata)**

Sarata means the optimum quality of body tissues. It is one of the assessment parameters to check the health of tissues. Physician may sometimes make a wrong judgement by just looking at the patient. A patient having corpulent or a big physique may not be strong or healthy. On the other hand, it is observed that some persons having small body and leanness are strong, like the tiny ants carrying a big load. This is why the optimum quality of tissues (dhatu sarata) shall be examined before understanding a patient's strength. [Cha.Sa. Vimana Sthana 8/115]

In contemporary practices, while treating metabolic syndrome, lipid profile is generally taken into account. When total cholesterol and LDL are high, it is usually considered a high-risk group. However, the oxidized state should also be considered. Unless and until the LDL is getting oxidized, it will not create any pathological conditions. The lipid profile is not an indicator of optimum quality of adipose tissue (meda sara). In Ayurvedic management of metabolic syndrome, these are fundamental concepts that should be taken to account. So far as Ayurveda is considered, these types of investigations or criteria are very superficial and have a very limited scope in treating metabolic disorders.

Quality of tissue (sarata) and blood parameters should be assessed before treating a patient. The biomarkers used in modern medical practice are insufficient and often inappropriate to decide the patient's diagnosis, prognosis, and treatment. The same is true while applying them in diagnostic and research of Ayurveda perspectives.

In most of the researches in obesity, weight is considered as the main parameter. However, it is a very superficial parameter. Weight reduction to make the obese person thin is a primary goal in general practice. However, the most crucial concern in treating an obese person is not to make the person thin but to transform an unhealthy obese person to a healthy obese person. [Su.Sa. Sutra Sthana 35/34] If the person has adipose tissue with optimum quality (meda sara), it is challenging to reduce weight. Similarly, in hyperhomocysteinemia, one should see whether the patient is with optimal quality of blood tissue (rakta sara), before treating the person. So while treating obesity and metabolic syndrome through Ayurveda, the targets should be different, and the biomarkers should be more specific.

### **Selection of biomarker**

The selection of biomarker depends on the type of disorder and drug used for therapy. The correct selection of biomarker sheds light on the mode of action of that particular drug. The medicines described for the treatment of obesity vary in their mode of action. The different medicines for reducing body tissues (lekhana) act differently. Some medicines work on fatty liver; some on skeletal muscles; some have insulin sensitizing action; and some have anti oxidant activities specific to the adipose tissue (meda dhatu). So depending on the underlying pathology and drug, the biomarker should be selected. If we suspect inflammatory involvement, then the best biomarker is either Adiponectin or high sensitive c reactive protein (HSCRP). Adiponectin level suggests the presence of inflammation, tendency of atherogenesis, or presence of insulin resistance at the cellular level. In different types of metabolic disorders like hypercholesterolemia, hyperhomocysteinemia etc. the specific biomarker should be selected.

### **Disorders due to overnutrition (santarpanajanya vyadhi)**

#### **Causes**

##### **Dietary causes**

Excess intake of unctuous (snigdha), sweet (madhura), heavy to digest (guru), slimy (picchila) foods, new grains, new fermented drinks, the flesh of animals living in the marshy area or water, cow milk and its products, jaggery products, foods prepared with rice batter leads to metabolic diseases. [Cha.Sa. Sutra Sthana 23/3-4]

##### **Lifestyle factors**

Less physical activities, sleeping in the daytime, excessive indulgence in lying, sitting, and sexual activities. [Cha.Sa. Sutra Sthana 23/3-4]

##### **Diseases involved**

Obstinate urinary disorders, diabetic carbuncles, skin rashes, itching, anemia, fever, skin disorders, diseases caused by ama, dysuria, anorexia, lassitude, erectile

dysfunctions/impotency, obesity, laziness, heaviness in body, coating in body channels and sense organs, delusion, edema etc. are caused as a result of metabolic syndrome. [Cha.Sa. Sutra Sthana 23/5-7]

It should be noted that these diseases, especially anemia (pandu), obstinate skin disorders (kushtha), fever (jwara), erectile dysfunction (klaibya) are caused from overnutrition. So the underlying pathology must be understood before treatment. Even degenerative or catabolic disorders may result as a consequence of excess anabolism. For e.g.: if erectile dysfunction is caused due to obesity, treatment with vajikarana (aphrodisiac) medications won't work.

### Pathology

Some of the underlying biochemical principles and pathological factors that result in anabolic disorders are not addressed while giving Ayurvedic treatment. Those are:

1. Concept of oxidative stress
2. Mitochondrial dysfunction
3. Endoplasmic reticulum (ER) stress
4. Low-grade inflammation
5. Nutrition excess
6. Malnutrition including advanced glycation end products (AGE)
7. Circadian rhythm
8. Gut Microbiota

The major Ayurvedic concepts that are responsible for the pathogenesis of metabolic disorders are as follows:

1. Digestion and metabolic processes (agni)
2. Undigested and metabolic toxins (ama)
3. Body tissue (dushya), geographical conditions (desha), general physical constitution (prakriti), time (kala), body strength (bala).
4. Food including and portion size
5. Lifestyle and exercise capacity
6. Antagonistic food (viruddha anna and malina ahara)
7. Daily and seasonal regimens (dinacharya and ritucharya)

**Gut flora:** This is important to consider the action of drugs. If this is not targeted, the short-chain fatty acids (SCFA) coming out of inflamed intestine get deposited in liver. It can't be stopped. The use of Curcuma longa (haridra), Andrographis paniculata (kalamegha) etc. can alter the gut flora. It can stop intestinal inflammation and prevent the deposition of SCFA into the liver.

## Prognosis

All metabolic disorders require long-term treatment and are difficult to cure (kashta sadhya). If the medicines need to be given for short duration, then only phyto-pharmacology can be considered. If long-term therapy is needed as in metabolic disorders, the above-mentioned factors must be considered.

For e.g: In metabolic disorder, viruddha ahara or malina ahara (antagonistic food) is an important factor. Consumption of wine with cheese, fruit juices in early morning, milkshakes with non-vegetarian foods, non-vegetarian food with curd are antagonists (viruddha). With the help of molecular biology and biochemistry, clear explanations are available about their antagonistic effect (viruddha).

## Obesity – Diagnosis and Ayurvedic management

Obesity is now increasing with age, more prevalent among lower socio-economic and lower-income groups, with a particular strong social gradient towards women. It is essential to treat Obesity, because it is a known risk factor for the following conditions:

- Type 2 Diabetes
- Coronary Heart Disease
- Metabolic Syndrome
- Cancer: especially Breast and Colon
- Psychological ill-health
- Osteoarthritis
- Hypertension

### Definition

Obesity is a chronic, lifelong, genetically related, life-threatening disease with highly significant medical, psychological, social, physical, and economic co-morbidities. But unfortunately, obesity is not classified as a disease in the medical system. It is considered as the status symbol of the body.

### Co-morbidities

Reduced lifespan, restricted movements, impotence or reduced sexual activities, debility, bad odor, profuse sweating, excessive hunger and thirst are the complications considered in Ayurveda for an obese person. [Cha.Sa. Sutra Sthana 21/3]

### Causes

Overconsumption of heavy to digest, sweet, cold, unctuous diet are considered as the causes for obesity. This sequence is also important. Importance is given for heavy to digest and sweet substances than cold and unctuous substances. So even if a particular food item,

e.g. ice cream, is prepared as sugar-free, it is heavy to digest. So it remains to be a potential causative factor for obesity and other metabolic disorders. Unctuousness is considered as the last factor in this hierarchy. However, unfortunately, nowadays, it is the first target in the management of obesity.

Lack of physical exercise, abstinence from sexual intercourse, sleeping during the day, uninterrupted cheerfulness, lack of mental activities, and genetic defects are the other factors responsible for obesity. In western countries, genetic obesity is much more prevalent than in India.

**Genetic obesity:** Obesity runs in families due to genetic disorders. It may also be due to the similar eating habits of all the family members. Several genes are involved which are responsible for weight gain.

**OB gene:** It is a gene that prevents leptin production, a hormone released by adipose tissue. It is released in the bloodstream to inform the appetite center in the brain about the level of body fat store. When this communication system works correctly, the hypothalamic area of the brain responds to leptin by reducing appetite and speeding up metabolism to maintain a normal level of body fat. If the OB gene fails to produce leptin, the brain promotes the storage of fats resulting in obesity.

#### **Endocrine dysfunction:**

The endocrinological disorders like hypothyroidism, acromegaly and poly cystic ovarian disease can cause obesity.

#### **Classification**

##### **Based on the fat cell characteristics**

1. Mildly obese: Enlarged fat cells (hypertrophic obesity)
2. Moderately obese: Fats are larger in size and more in number
3. Severely obese: The number of fats cells are significantly increased (hyperplastic obesity)

##### **Based on the histopathology of fat cells**

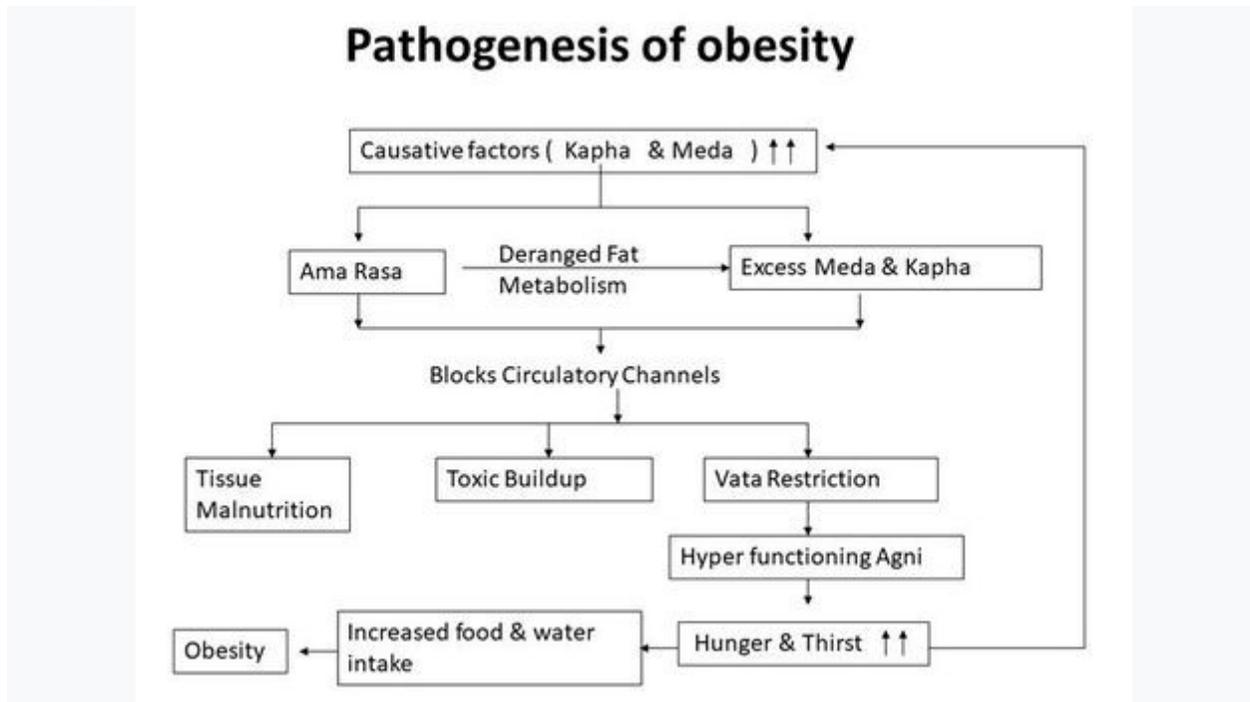
1. Hyperplastic obesity: The number of fats is increased
2. Hypertrophic obesity: Enlargement of fat cells happens. It is seen more in metabolic disorders.

##### **Based on the distribution of fat**

1. Generalized
2. Central (Android obesity): Involves only the trunk and neck

3. Superior: Involves face, arm, neck, and upper part of trunk
4. Inferior: Involves lower part of trunk and neck
5. Girdle type (Gynoid obesity): Involving hips, buttocks and abdomen with a fatty apron
6. Breaches of trochanteric type: Involves only the buttocks
7. Lipomatous type: Multiple lipomatosis with localized deposits of fat over the body

## Pathogenesis



**Figure 2: Pathogenesis of Obesity**

Due to the causative factors, the adipose tissue (meda dhatu) only is nourished. This leads to obesity. The other tissues (dhatu) do not get nourishment. It results in laxity (shaithilya) in each body tissue. This leads to a shortening of life span. [Cha.Sa. Sutra Sthana 21/3] This laxity is also seen in obstinate urinary disorders, including diabetic mellitus (prameha).

As per the definition of obese (sthula), there is a simultaneous increase of adipose tissue (meda dhatu) and muscle tissue (mamsa dhatu). So the muscle tissue (mamsa dhatu) should also be targeted during treatment.

Due to the obstruction of body channels by adipose tissue (meda dhatu), vatadosha is trapped inside the gut (koshta). The vatadosha continuously stimulates the agni (digestion and metabolism) and increases the demand for food. It leads to voracious appetite without the sense of satiety. [Cha.Sa.Sutra Sthana 21/5-6] This

pathogenesis can be related with strong insulin resistance at hepatic or pancreatic level or leptin resistance at hypothalamus level. These pathologies should be broken while treating obesity.

In pathogenesis of prameha, the kapha dosha and fat/adipose tissue (meda dhatu) mix with muscle (mamsa dhatu) and body fluids (kleda) which are already excessive in quantity. [Cha.Sa.Nidana Sthana 4/8] The disease prameha can be considered as a prototype for all metabolic disorders. So with meda dhatu and mamsa dhatu, kleda should also be considered in metabolic disorders. The laxity occurs due to excess accumulation of kleda in body tissues. It results in unwanted moisture or fluid (abishyandana) into body channels. This creates low-grade inflammation at cellular level. The pathogenesis is as shown in figure 2.

### **Role of body fluids (kleda)**

Kleda is a physiological factor responsible for moisture. It is essential to properly digest food and get food assimilated into body tissues (dhatu). It is one among the factors which are responsible for the transformation of food (aharaparinamakara bhava).[Cha.Sa. Sharira Sthana 6/14] In the normal state, it eases digestion. It is retained by sweat to moisten the skin. Excess of it is excreted through urine. When vitiated, it induces laxity, oozing or dampness in body tissues and thereby decline in their functions. It liquefies the dhatu quantitatively. It is closely associated with vitiated kapha dosha and adipose tissue (meda dhatu). It can result in rotting, putrefication and decomposition of body tissues. Kleda can be ascribed as an inflammation-creating factor at cellular level in body tissues. In metabolic syndrome, it creates inflammation of adipose tissue (meda dhatu). Excess kleda disturbs the microenvironment of the tissues. Vitiating kleda can result in cellular and tissue laxity, low-grade inflammation, mitochondrial dysfunction, or endoplasmic reticulum stress.

Kleda can lead to altered fluid distribution in body. It is a complication of lowered metabolism at cell level (dhatu agnimandya). The altered states include relative over hydration or cell dehydration, abnormal fluid regulation, and normal adaptation to hyperosmotic stress. These states could have different implications in obesity prevention and treatment. Therefore, kleda is an essential factor in treating obesity or any metabolic disorder.

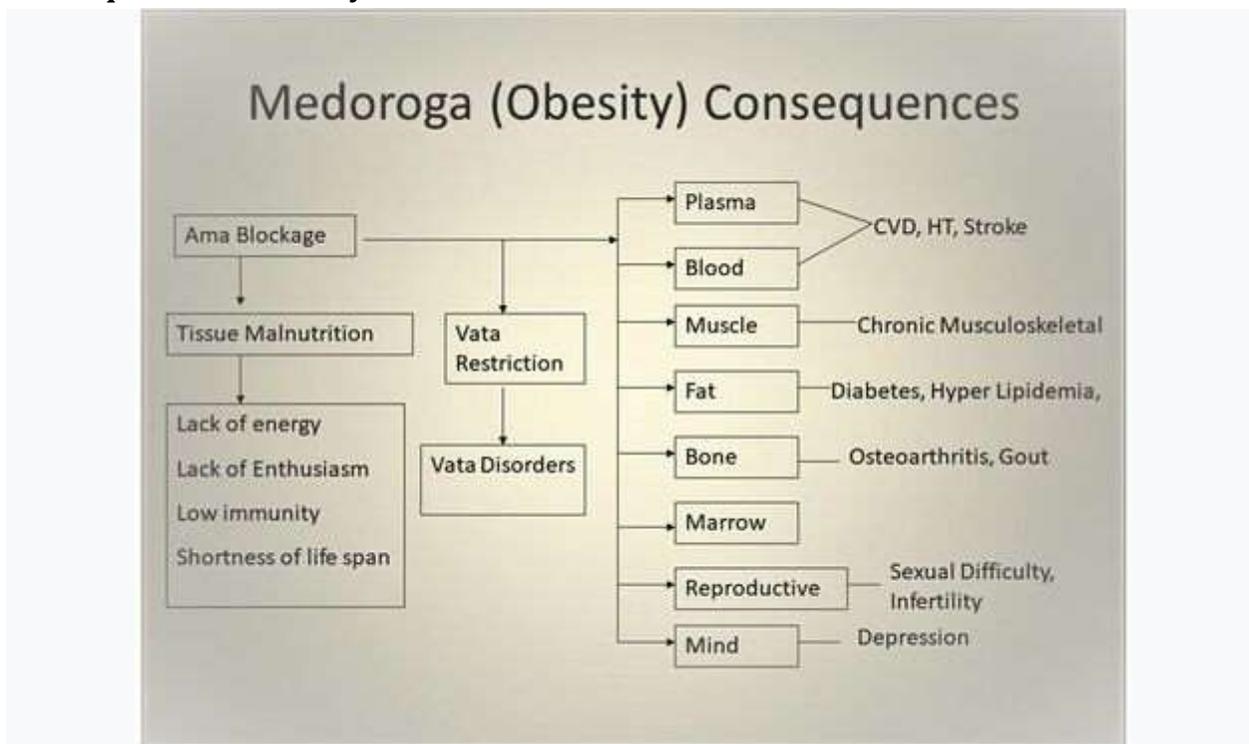
### **Role of muscle tissue (mamsa dhatu)**

Muscle tissue (mamsa dhatu) is one of the vitiated factors (dushya) in obstinate urinary disorders including diabetes mellitus (prameha). The sequence of the pathology of prameha points to vitiation of adipose tissue (meda dhatu) at first. This meda dhatu infiltrates muscle tissue (mamsa dhatu). Mamsa dhatu is vitiated in prameha due to excess kapha and obstruction of body channels (avarajanaya prameha). This indicates

that smooth muscles and skeletal muscles are affected in prameha. Fatty infiltration in skeletal muscles and oxidized lipid deposition in the endothelial layer of arteries is the primary pathology observed in muscles. This pathology develops strong insulin resistance at the skeletal muscle level. This creates more hunger pains and increases food intake. This pathology can be compared with hyperfunctioning of agni due to trapped [[vata]dosha as mentioned earlier.

The application of powder massage (udvartana) in disorders due to overnutrition (santarpanajanya vyadhi) can be justified at this juncture. Udvartana acts directly on the skeletal muscles and embedded arteries. It can probably remove the fatty infiltrations and reverse the disease pathophysiology.

### Consequences of obesity



**Figure 3: Complications of Obesity**

Obesity can lead to many complications and comorbid conditions as shown in figure 3.

### Principles of management

Breaking the chain of pathogenesis is the treatment. Merely weight reduction do not indicate management of obesity. It is an outcome of obesity management. The focus of treatment should be to provide nutrition to other tissues (dhatu). Improvement in the functioning of agni at each level is of prime importance in treating the metabolic disorder.

Ayurvedic treatments are highly personalized. One medicine does not suit all. While treating obesity, the different underlying causes such as oxidation, insulin resistance, leptin resistance, fatty liver, PCOS, drug-induced obesity etc. should be considered. These pathologies should be targeted instead of targeting the fats. Obesity and its complications should be targeted in single management. As far as possible, metallic preparation should not be used for obesity management. There are no confirmatory research works or evidence to show it is safe to use. Intake of ghee is not advised in this condition. Instead of ghee, sesame oil is used for the management of obesity and metabolic disorders.

The following principles are applied in the management of metabolic syndrome and obesity.

1. Controlling the cause (hetu)
2. Correcting the obstruction in channels (srotorodha)
3. Correcting poor metabolism (ama) status
4. Correcting digestion (agni) at every level
5. Correcting nutritious status of all other dhatu (tissues) other than meda (fats)
6. Keeping all the body channels (srotas) intact for proper nourishment of dhatu
7. Rejuvenation (rasayana)

This pharmaco-therapeutics is focused on correcting the following pathologies:

1. Oxidative stress
2. Mitochondrial dysfunction
3. Inflammation at cellular level (low-grade inflammation )
4. Gut flora
5. Appetite control system
6. Nutrition

### **Management therapies**

1. External purification (bahya samshodhana): Powder massage (udavartana), sitz bath (avagaha), Oil dripping or decoction on the body (parisheka), application of paste, powder (lepana).
1. Internal purification therapies (abhyantara samshodhana): Therapeutic emesis (vamana), purgation (virechana), nasal administration (nasya), therapeutic decoction enema (niruha basti)

## **Dietary management**

### **Avoiding heavy to digest foods:**

In obesity and metabolic disorders, heavy-to-digest foods (guru ahara) are the important causative factor. As per Ayurveda, many commonly used fruits such as watermelon are heavy in nature. Gut flora is disturbed by metabolic disorders and obesity. When body mass index (BMI) exceeds 27, changes in the gut flora are more observed. Firmicutes bacteria increase in the gut, which acts over the undigested heavy food items and convert it into methyl alcohol. From the gut, it is carried to the liver and thus produces fatty liver. So the heavy-to-digest food items should be strictly avoided in metabolic disorders.

In fatty liver, in the first stage, insulin resistance is observed at the hepatocytes. There is a reduction in fatty oxidation; increase in fatty acid influx into liver; increased lipogenesis and increased triglycerides. The second stage is lipid peroxidation. So the management should target lipid peroxidation, TNF-alpha, cytokine cascade, reducing the liquid/slimy content (kleda), correcting the metabolism (agni) etc.

Ayurvedic interventions considerably control the hormones - adiponectin and leptin secreted by adipose tissue. The treatment creates insulin sensitivity and reduces inflammation at adipocyte level. Adiponectin is inversely proportional to obesity. If weight is more, adiponectin level is less and vice versa. However, in people having optimum meda dhatu (meda sara), adiponectin level increases with weight.

### **Effect of therapeutic enema (basti) as a treatment in obesity**

Therapeutic enema with weight-reducing drugs (lekhana basti) has very important role in correcting the gut flora and reducing inflammation at the intestinal level. Short-chain fatty acids, which are created by the firmicutes bacteria, are transformed from the intestines to the liver. The action of basti may not be evident in 10 or 20 days. However, in due course of time, hormonal changes happen. The hormones like Ghrelin, GLP-1, GLP-2, GIP etc. can be used as biomarkers for the same.

### **Management of erectile dysfunction (klaibya or kruchhra vyavaya)**

Erectile dysfunction is commonly observed in obese male patients as complication. Insulin resistance is the emerging risk factor in metabolic syndrome. Obesity and sedentary lifestyle are the risk factors for erectile dysfunction. These are also the risk factors for endothelial dysfunction. As the penile artery is obstructed due to fat deposition, the lumen of the artery gets reduced. This finally results in erectile dysfunction. This narrowing may happen in coronary arteries, resulting in cardiovascular diseases. In such a condition aphrodisiac (vajikarana) treatment won't work. In such conditions, the drugs selected should have the property of secreting nitric oxide. This dilates the occluded arteries and thus corrects the pathology. E.g.: Garlic (lashuna) is one of the ideal drugs for treating such conditions.

## Conclusion

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In the treatment of metabolic disorders and obesity, primarily the cause must be avoided. The causes like heavy, cold, slimy foods items should be avoided. A sedentary lifestyle must be corrected. The obstruction in the body channels, accumulation of toxic metabolic wastes (ama) and digestion and metabolism (agni) must be corrected at multiple levels. Correcting the nutritional status of all other dhatu except adipose tissue (meda), keeping all the pathways intact for the proper nourishment of body tissues, and rasayana should be done. In other words, management of metabolic disorders and obesity includes correcting oxidative stress, mitochondrial dysfunction, low-grade inflammation, gut flora, appetite control system, and nutrition. By strict dietary restrictions and lifestyle modifications, this condition can be controlled.

## Interactions

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**Q. (Dr. Jayprakash Ram):** Do the lipid levels change as per individual. How to assess what is normal value for an individual?

**A:** Yes. The lipid levels change as per individuals. The lipid levels also change with age, desha (geographical conditions/body constitution) and prakriti (dosha constitution). The normal values cannot be generalized. It has to be correlated with the optimum quality (sarata) of tissues. If the lipid levels are deranged, further investigations like insulin resistance, HSCRP, homocysteine etc. can be done. If these investigations are normal, the abnormal lipid values should be considered as normal to that particular individual.

**Q. (Dr. Yogesh Deole)** Please enlighten on the role of bhutagni (agni at the level of panchamahabhuta) in obesity. How to assess it clinically?

**A:** Bhutagni works like a vehicle. Bhutagni carries the fuel (food) to the tissues (dhatu). The fuel is filled in a vehicle (body gut) only when it is empty (hungry state). If we overfill the tank (gut) beyond its capacity, it leads to engine dysfunction (agni vaishamya). Likewise, when there is excess body fluid (kleda) formation, aap bhutagni becomes less. In this condition, the diet control and medicines advised should work on aap mahabhutaagni. The water intake must be restricted. The astringent medicines should be given as they have kledashoshana (drying) and stambhana (obstructing) property.

## Reference

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# Cardiac diseases

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**Website link:**

[https://www.carakasamhitaonline.com/index.php?title=Cardiac\\_diseases](https://www.carakasamhitaonline.com/index.php?title=Cardiac_diseases)

**Youtube link of recorded lecture:** [https://www.youtube.com/watch?v=Ij1sONg\\_UeA](https://www.youtube.com/watch?v=Ij1sONg_UeA)

## Updates on management of cardiac diseases through Ayurveda

This article is based on lecture delivered by Dr. Rohit Sane in Prof.M.S.Baghel Memorial Lecture Series on June 09, 2021.

The major chronic diseases prevailing in India are cardiovascular disorders (CVD), diabetes, hypertension, obesity and dyslipidemia. Mortality due to cardiovascular disease is increasing substantially. In the year 1990, the mortality rate due to CVD in India was 15.2, which increased to 28.1 in 2016.<sup>[1]</sup> Despite the advancements in modern medicine, especially in treating CVD like angioplasty, bypass surgery, etc., the disease burden is increasing. Ayurveda can play a significant role in treating CVD as a lifestyle disorder and a non-communicable disorder.

The risk factors of CVD are diabetes, hypertension, and obesity. The burden of these lifestyle disorders is also high on the rise. As per the data available, 9.7% of the adult population in India has Diabetes.<sup>[2]</sup> Hypertension is present in 25% of urban and 10% of rural subjects in India. Stage I hypertension carries significant cardiovascular risk.<sup>[3]</sup> Therefore, it is essential to treat these comorbid conditions while treating CVD.

## Importance of animal trials

In Ayurvedic classical texts, different treatment techniques and different drugs are mentioned for the treatment of heart disorders. This must be re-proved per the current knowledge. Animal trials are necessary to understand the mode of action of the drug along with re-establishing its efficacy.

## Antihypertensive herbs

Common Ayurvedic herbs used in the treatment of hypertension and their mechanism of action is shown in Table 1 below.

**Table 1: Herbs used in the management of hypertension**

<b>Herb</b>	<b>Latin Name</b>	<b>Mechanism of action</b>
Bramhi	Bacopa monnieri	Calcium channel antagonist
Shunthi	Zingiber officinale	Calcium channel antagonist
Vacha	Acorus calamus	ACE inhibitor
Bibhitaki	Terminalia bellirica	ACE inhibitor
Pippali	Piper longum	ACE inhibitor
Kalaajaji	Nigella sativa	Diuretic
Punarnava	Boerhavia diffusa	Diuretic

Since Bramhi and Shunthi are calcium channel antagonists they can be used for patients with systolic hypertension. Vacha, Bibhitaki and Pippali can be used in diastolic hypertension as they are ACE inhibitors. Kalaajaji and Punarnava are excellent diuretics to be used very effectively in the early phase of hypertension.

### **Anti-diabetic herbs**

Some of the Ayurvedic herbs used in diabetes management and their mechanism of action are shown in Table 2.

**Table 2: Herbs used in the management of diabetes**

Herb	Latin Name	Mechanism of action
Daruharidra	Berberis aristata	Hypolipidemic, insulin resistance
Amalaki	Phyllanthus emblica	Beta cell-protective & beta cell regenerative
Haridra	Curcuma longa	Hypolipidemic & Beta cell protective
Vishanika /Gudmar*	Gymnema sylvestre	Insulin secretogogues
Banaba/ Jarul	Lagerstroemia speciosa	Insulin secretogogues

- Gudmar also has the capacity to produce a coat over the intestine so that the carbohydrate absorption through the gut gets reduced.

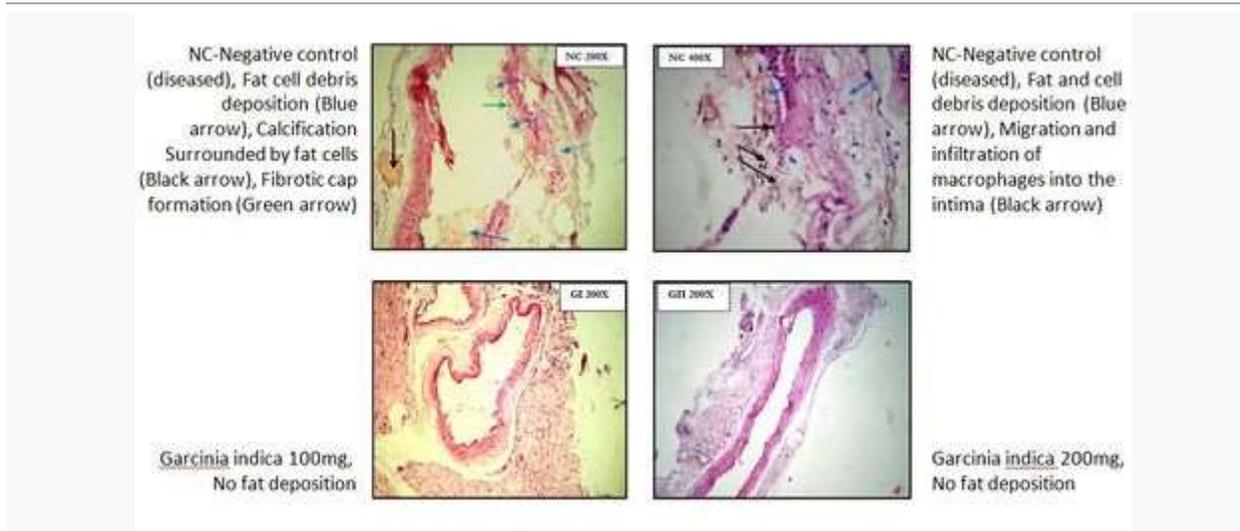
### **Herbs for management of coronary artery disease**

The coronary artery disease (CAD) is caused due to atherosclerosis. The deposition of cholesterol and fatty tissue form plaque in the endothelium of coronary arteries. This causes clogging or damage to the artery and hamper blood circulation to myocardium. Ayurvedic herbs are described as hridya (beneficial for heart) in [Charak Samhita Sutra Sthana 4/10]. Some of the researched herbs used in the management of coronary artery disease (CAD) and their mechanism of action are shown in Table 3.

**Table 3: Herbs used in the management of coronary artery disease**

Herb	Latin Name	Mechanism of action
Vrikshamla	Garcinia indica	Anti inflammatory, Hypolipidemic
Matulunga	Citrus medica	Anti inflammatory, Hypolipidemic
Amlavetasa	Rheum emodii	Anti inflammatory, Hypolipidemic
Pushkaramula	Inula racemosa	Anti inflammatory, Hypolipidemic

**Experimental studies on hridya herbs**



**Image 1: Effect of garcinia indica in atherosclerosis**

Various experimental studies are conducted to study the effect of herbs in reducing atherosclerosis. The animals were first fed with high fat, high cholesterol diet. As a result, the endothelium of vessels gets deposited with fatty tissues (atherosclerosis), which is considered as the primary cause for blockages. Then the same animals were fed with CAD reversal herbs like Garcinia indica (Vrikshamla) for six weeks. Garcinia treatment

protected the endothelium from atherosclerosis. The endothelium becomes intact without any fatty tissue deposition.<sup>[4]</sup>

### **Sampurna Hridaya Shuddhikaran (SHS) therapy**

A treatment protocol named “Sampurna Hridaya Shuddhikaran” (Total Purification of Heart) is developed by an amalgamation of ayurvedic and modern medical knowledge. It is an interventional health model to improve the quality of life in chronic heart failure patients.

A single session of sampurna hridaya shuddhikaran (SHS) is of 90 minutes duration. A session of SHS includes four main procedures.

1. Oleation (snehana): It includes whole-body massage in the form of strokes from the periphery towards the heart. Sesame oil processed with Terminalia arjuna, Vitex nigundo and Dashamula (group of 10 herbs) is used for massage.
2. Fomentation (swedana): Fomentation is given by keeping the patient inside a wooden chamber. The vapor is produced out of decoction prepared with Dashamula.
3. Dripping decoction on chest/cardiac region (Hrudaydhara): The warm decoction prepared with Dashamula is dripped in a continuous stream from a height of 7-8 cm to the medial mediastinum region.
4. Therapeutic enema (basti): Decoction enema prepared with Terminalia arjuna, Acorus calamus, and Boerhavia diffusa is administered.<sup>[5]</sup>

### **Effects of SHS therapy**

#### **Improvement in quality of life and VO2 max**

VO2max is the measurement of the volume of oxygen that the body can utilize during physical exertion. In chronic heart failure, the person feels breathless after walking for a certain distance. A total of 692 chronic heart failure patients were recruited in a trial to assess the efficacy of SHS therapy. At the end of this therapy, the patients were assessed for quality of life. It is found that the quality of life improved substantially, and VO2 max was also improved.<sup>[6]</sup>

#### **Improvement in exercise tolerance**

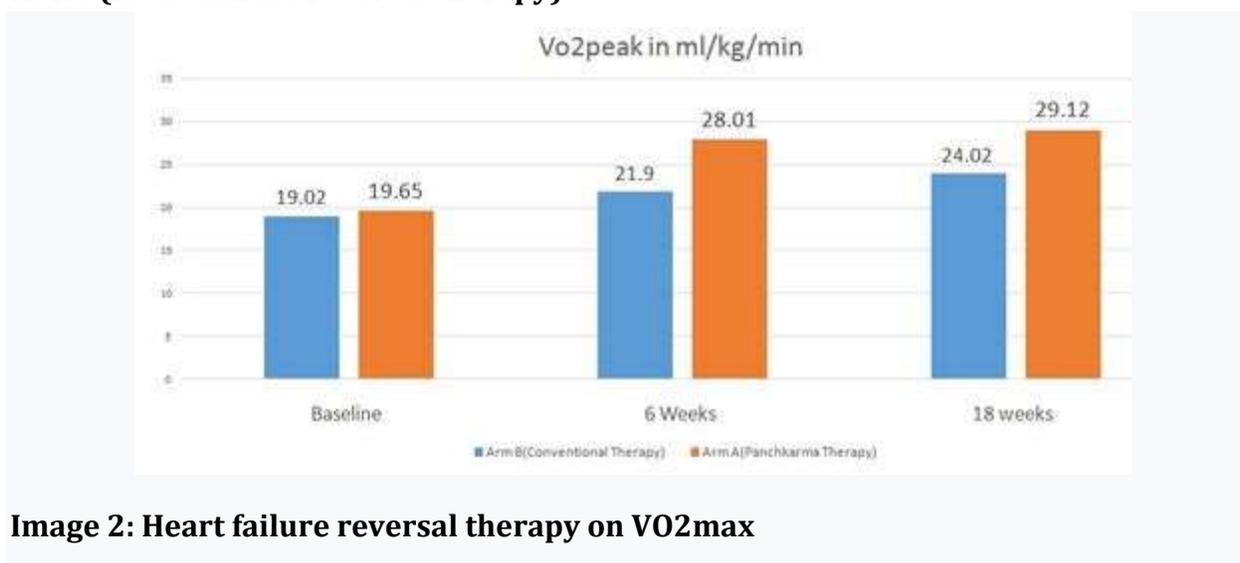
The American heart association prescribes the six-minute walk test (6MWT) for chronic heart failure (CHF) patients. Average persons can walk 350m in 6 minutes. However, patients with CHF are unable to cover that distance in 6 minutes. In a study on 200 patients of CHF, the SHS therapy with Madhavbaug Cardiac Rehabilitation Centre (MCRC) protocol on stress test showed improvement in cardiac effort tolerance of 132.1 seconds on the sixth day. The Sampurna Hridaya Shuddhikaran (SHS) model was observed very much effective in improving the exercise tolerance of Chronic Heart Failure patients. This improvement is independent of Age, Sex, and BMI of the study participants.<sup>[7]</sup>

### Improvement in ejection fraction

A prospective interventional study on 133 patients was conducted to assess the efficacy of SHS on the ejection fraction. The preintervention ejection fraction (39.43) was significantly increased to 45.98 after 30 days of Sampurna Hridaya Shuddhikaran treatment. SHS showed improvements in ejection fraction, myocardial thickness, and exercise tolerance.<sup>[8]</sup>

Effect of SHS with slightly modified protocols is studied in different research programs titled Heart Failure Reversal Therapy (HFRT) and Ischemia reversal program (IRP).

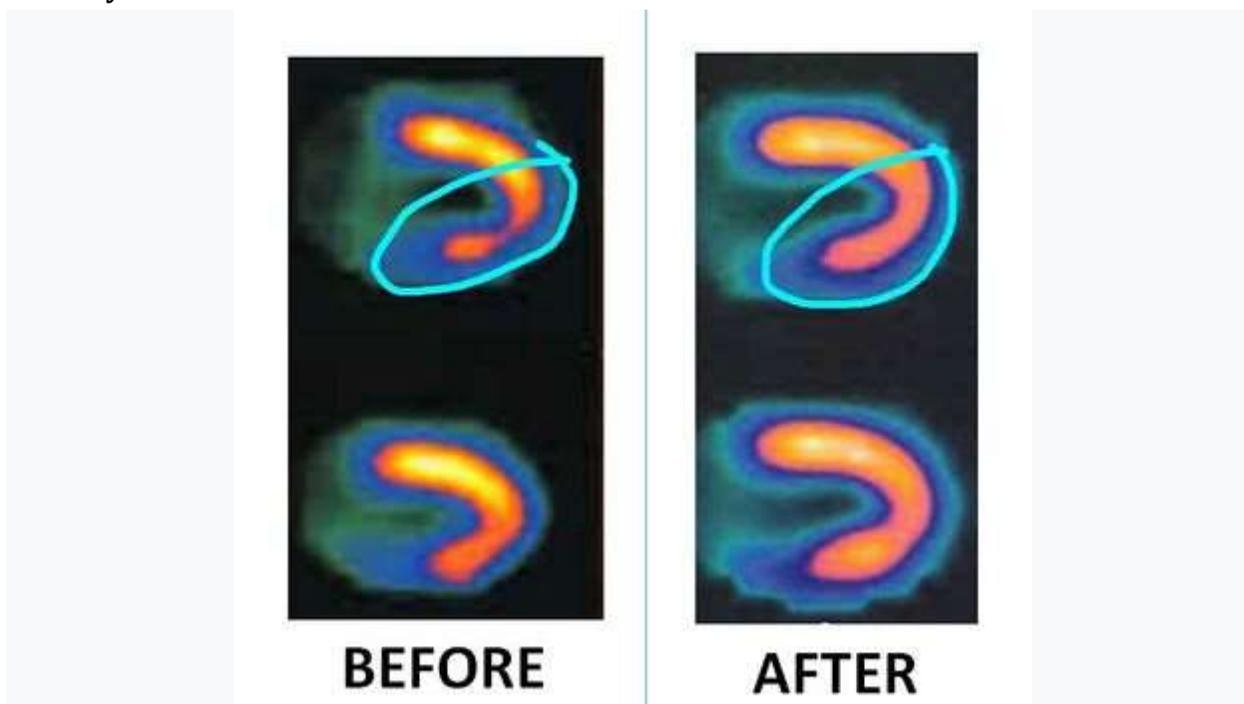
### HFRT (Heart failure reversal therapy)



**Image 2: Heart failure reversal therapy on VO2max**

In a randomized controlled trial, one group (Arm A) received HFRT (Heart failure reversal therapy) with conventional oral medications for heart failure. The other group (Arm B) received only conventional oral medications. VO2 max in Arm B group was 19.02ml/kg/min initially. After six weeks of conventional treatment, VO2 max increased to 21.9ml/kg/min. After 18 weeks, it again raised to 24.02 ml/kg/min. The initial VO2 max in Arm A patients was 19.65 ml/kg/min, almost equal to that of Arm B. After six weeks of therapy VO2 max raised to 28.01 ml/kg/min, and after 18 weeks of therapy, it again raised to 29.12 ml/kg/min.<sup>[9]</sup> [Image 2] This shows the significant advantage of HFRT over conventional treatment in heart failure.

### Efficacy in ischemic heart disease



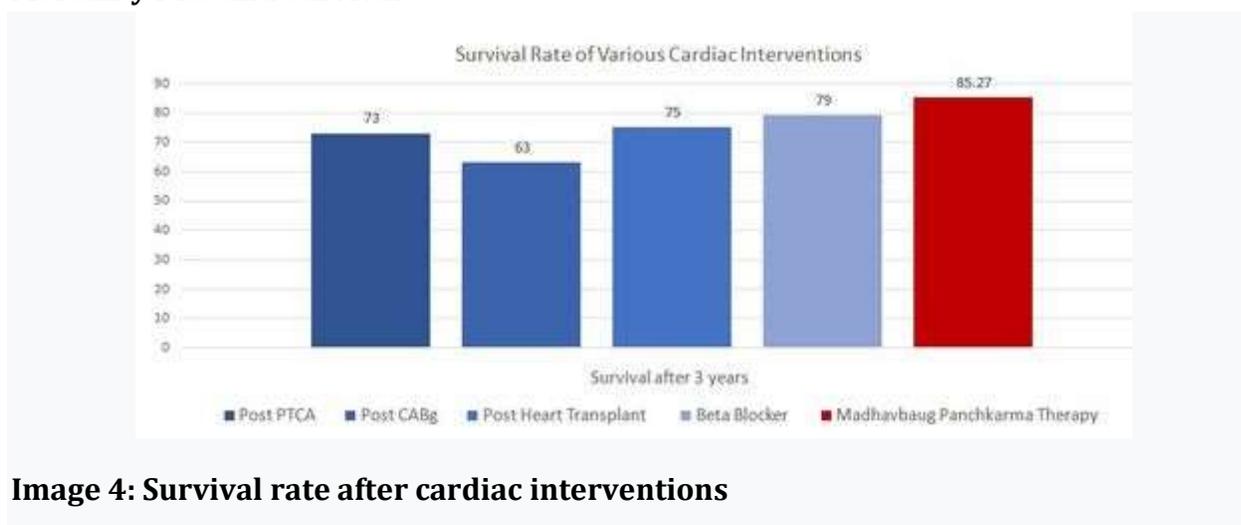
**Image 3: Ischemia Reduction on Myocardial Perfusion through SPECT MPI**

Stress Thallium test was applied to assess the reversal of ischemic changes in patients of CHF associated with myocardial ischemia. The radioactive isotope Thallium was injected into the bloodstream of cardiac patients. Gamma scanner was used to assess the circulation of thallium in the myocardium. After three months of ischemia reversal program, 30.33% of the reduction was observed in ischemia on Myocardial Perfusion through SPECT MPI.<sup>[10]</sup>

### Effect on left ventricular distress

Efficacy of Heart Failure Reversal Therapy (HFRT) in reducing left ventricular distress was studied. N-terminal pro-brain natriuretic peptide (NT-proBNP) was used as a marker to assess the effect of therapy in congestive heart failure (CHF) patients. The value of NT-Pro BNP increases with an increase in the severity of CHF. The study therapy, HFRT, including SHS protocol, was administered twice daily for seven days. Post-HFRT, decoction prepared with Terminalia arjuna, Acorus calamus, and Boerrhavia diffusa was administered for the next 12 weeks of follow-up. NT-proBNP levels were measured after a follow-up period of 90 days along with some other parameters like BMI, VO<sub>2</sub>peak (evaluated by cardiac stress test with modified Bruce protocol) and weight. The findings of the investigation revealed a significant reduction in NT-pro BNP levels (42.46%,  $p = 0.009$ ) at the end of the follow-up period. The study also yielded significant improvements in VO<sub>2</sub>peak (50.96%,  $p = 0.004$ ). The overall results suggest that HFRT can possibly be explored as add-on therapy or a feasible alternative for the effective management of CHF.<sup>[11]</sup>

## Mortality rate and survival



**Image 4: Survival rate after cardiac interventions**

The survival rate of cardiac patients after coronary angioplasty after three years is 73%. After coronary bypass graft, the survival rate is 63%. After a heart transplant, it is 75%. Survival rate increases to 79% after taking beta-blocker drugs. The survival rate post three years of Ayurvedic panchakarma therapy at Madhavbaug rises above 85%.<sup>[12]</sup>

As per various published data, the survival rate of various cardiac interventions is shown below. [Image 4]

## Conclusion

Ayurvedic treatment shows an advantageous effect in treating chronic lifestyle disorders like diabetes, hypertension, and cardiovascular disorders. Ayurvedic treatment is implemented as a first line of therapy in these disorders; then, the mortality burden can be reduced significantly.

## Interactive session

**Q.** Please share the experience in the development of collateral circulation after Ayurvedic cardiac treatment

**Ans:** The basic assessment for the development of collateral circulation is the stress test. For e.g.as per Bruce protocol, an increase in walking time indicates that more blood is reaching the myocardium because of the improvement in collaterals. Global longitudinal score with 2D echo with four-chamber view should be -18 and beyond. The patient with scores -10, -8 suggests the patient is ischemic. After the therapy, if the score is improving like -14, -16 etc., the collaterals are improving. But a correct identification of the cause for improvement in functions, whether it is due to collateral improvement or whether it is due to reduction in a block, is challenging to determine.

**Q.** Do you observe any relation between prakriti (body constitution) and its susceptibility to cardiac disorders?

**Ans:** Prakriti and the involvement of dosha are very much influencing the development of cardiac disorders. Typical presentations explained for different kinds of hridroga (cardiac disorders) can be seen in patients. For eg. In vataja hridroga the pain will be severe. It may be cutting, stabbing, tearing etc., in nature. In kaphaja hridrog pain will be minimal. The other symptoms like excessive salivation, heaviness in the chest etc., are more predominant. In pittaja hridroga burning in the sternum/epigastric region is the main presenting feature. The classical treatments mentioned for these individual types of cardiac disorders give an excellent result.

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# Neurological diseases

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Youtube link of recorded lecture: <https://www.youtube.com/watch?v=L8t00QALxLk>

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## Diagnosis and Management of Neurological Diseases in Ayurveda

This article is based on the lecture delivered by Prof. (Dr.) S.H. Acharya in Prof. M. S. Baghel Memorial Lecture Series on July 09, 2021.

### Vata and Neurological Diseases

Neurological diseases are generally considered under the umbrella of diseases of vata dosha (vata vyadhi). However, diseases of vata does not limit to neurological disorders. Similarly, certain neuropathological conditions are beyond the limits of pure vata disorders.

### Physiological boundaries of vata

Vata is an essential factor for the sustenance of life and cognitive functions. [Cha. Sa. Sutra Sthana 25/40]. Vata is responsible for all activities in living beings, and its derangement can result in many diseases and even fatality. [Cha. Sa. Sutra Sthana 17/ 118] All voluntary and involuntary body movements, including natural physiological impulses (somatic & psychosomatic), are executed by neural pathways. These activities with cranial nerve impulses are outcomes of activities of vata. Respiratory functions, cardiac and circulatory activities are invariably done by vata. All somatic systems and their regulatory functions and integration are governed or maintained by vata.[ Cha. Sa. Sutra Sthana 12/ 8] It also controls and regulates the activities of the mind (manas). [Cha. Sa. Sutra Sthana 12/8] The perception, cognition, and thought process is under the control of vata. So, the vegetative nervous system, central nervous system or higher nervous system, brain-behavior, and mental functions are all governed by vata itself. The physiology of vata cannot be limited to neurophysiology. Instead, it can be extended to molecular biology in addition to the neuronal or cellular functions.

### **Anatomical considerations of vata**

Even though vata is ubiquitous all over the body, its specific location is the large intestine (pakwashaya) by Ayurvedic classics. The skin (twak), auditory system (shrotra) and bone (asthi dhatu) are additional locations.

The Sanskrit terms like mastishka, mastulunga, murdha represent the cerebrum and its components. Some other terms like “merudanda” (vertebral column), “sushumna” (spinal cord), “nadi”(nerves), brahmavari(cerebro spinal fluid) show the anatomical components.

The terms like sira (blood vessels), snayu (tendons) and kandara (ligaments) describe the pathology of seizures (akshepaka, dandaka) and palsies (ardita, pakshaghata). Their description in vata vyadhi confirms the connection of vata dosha disorders with the nervous system.

### **Head (shiras)**

The head is the most vital organ in the body (uttamanga). The roots of all the sensory and motor organs (indriya) are located in the head. [Cha. Sa. Sutra Sthana 17/12] Several vital points (marma) are located in the head. Any damage to these areas (marma sthana) can produce symptoms similar to neurological disturbances.

The location of mind is described as between the top of the skull and palate by Acharya Bhela. It is precisely where the cortex and limbic system, i.e., the higher nervous system related to the functions of the mind is located.

In Ayurveda, more importance is given to functional aspects than the neuro-anatomical structures.

### **Ayurvedic terminologies resembling neurological diseases**

A number of diagnostic terminologies related to the disorders of vata can be correlated with neurological diseases.

These are some conditions related to neurovascular, neuro degenerative, myelopathic and radiculitis disorders which may affect pyramidal or extrapyramidal tract, both peripheral and central nervous system:

- Padabhramsha-(Foot drop)
- Padasuptata (Loss of sensation in feet)
- Pindikodveshtanam (Cramps in calf muscle)
- Gridhrasi (Radiculitis /Sciatica)
- Urustambha (Myelopathy/sensory palsies)
- Urusada (Asthenia of lower limbs)
- Pangulya(Loss of strength in one leg)

- Khanjattva (paraesthesia)
- Bahu shosha (atrophy of upper limb)
- Mukatva (Aphasia)
- Vaksanga (Dysarthria)
- Ghrana nasha (Anosmia)
- Badhirya (Auditory loss)
- Timira (Retinal blindness)
- Ardita (Transient ischemia/facial palsy)
- Ekanga Roga (Monoplegia)
- Sarvanga Roga (Quadriplegia)
- Pakshaghata (Hemiplegia)
- Akshepaka - (Seizures/convulsions)
- Dandaka - (Decerebrate rigidity/clonic)
- Tama (Fainting)
- Bhrama (Vertigo)
- Vepathu (Tremors)

### **Neuropsychotic conditions**

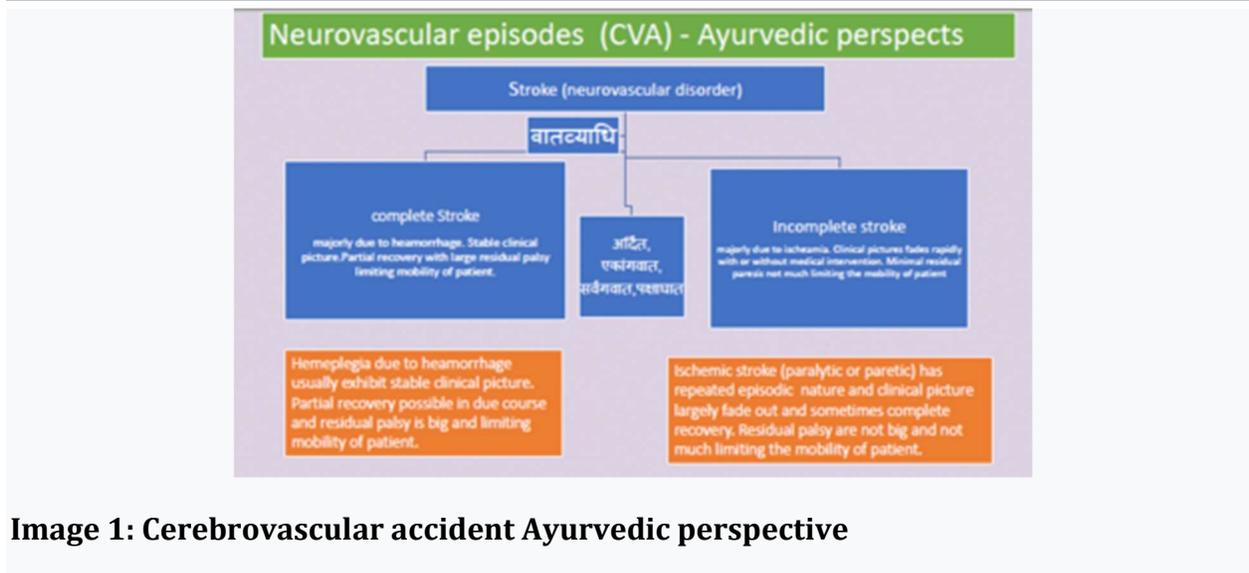
- Vishada (Depression)
- Pralapa (incoherent speech)
- Anavasthitha Chitta (fleeting thoughts)

### **Radiculopathies**

It includes Gridhrasi (Sciatica), Khalli (twisting pain in the extremities), Vishwachi (shoulder pain), Apabahuka (frozen shoulder), Ansa shosha (atrophy of scapular muscles)

Ayurveda classics have mentioned clinical features like spasticity (sankocha), rigidity (dandaka), tremor (vepathu) and atrophy (shosha) related to neurological diseases. Various motor palsies and sensory palsies specifically related to tactile-thermo-deep-proprioceptors are also mentioned.

## Diagnostic and Therapeutic approach in Ayurveda



**Image 1: Cerebrovascular accident Ayurvedic perspective**

### Cerebrovascular accidents

Cerebrovascular stroke is of two types considering its etio-pathology and manifestations. The principles of treatment vary based on etiopathology. Ayurveda also considers cerebrovascular attacks in the same way.

### Incomplete stroke

The clinical manifestation of 'ardita' is described as either half of the entire body or half of the face affected by aggravated vata dosha.[Cha. Sa.Chikitsa Sthana 28/42]

So, ardita has a very similar clinical picture as that of pakshaghata (hemiplegia). However, a group of illnesses noted along with 'ardita' manifest in episodic form (vega). When the episodic event seizes, the patient is almost in normal state. Thus, a differential diagnosis between ardita and pakshaghata is chiefly relying on the transient nature of ardita [Chakrapani commentary, Cha. Sa. Chikitsa Sthana 28/38-42]

Thus, ardita simulates a transient ischemic attack or incomplete stroke, and pakshaghata simulates the condition of complete stroke. The difference in line of treatment for ardita and pakshaghata apparently reflect the difference in their etiopathological context.

### Management of incomplete stroke

In ardita, nasya therapy is the first choice of therapy or the recommended line of treatment. Various studies have demonstrated the effect of nasya therapy in transient ischemic attacks and postulated its direct impact on intracerebral space.

There are three main hypotheses (as earlier proposed by the speaker) on the mode of action of nasya therapy on the brain and neurological diseases.

**a) Shringhataka Srotas:** tiny vascular pathways giving entry to intracranial space.

**b) Mastulunga factor:** accessibility to cerebro spinal fluid through arachnoid sleeves.

**c) Ghreya prayoga:** particular olfactory passage with chemo signaling.

Nasya therapy, if performed judiciously in accordance with the classical procedure can produce noticeable results in ischaemic conditions. The position of the head shall be lowered from the table. Person in a supine sleeping position with hyper extended neck and head slightly hanging downward (head low position)]

### Complete stroke

Stroke resulting from cerebrovascular hemorrhage can lead to hemiplegia or monoplegia or quadriplegia depending on the focal area. Acharya Charaka has also mentioned these different conditions as ekanga roga (monoplegia), sarvanga vata(quadriplegia) and pakshavadha(hemiplegia). [Cha.Sa.Chikitsa Sthana 28/54-55]

Acharya Sushruta has mentioned the involvement of the vascular system (dhamani) of the head in the pathology of stroke - Pakshaghata. [Su. Sa. Nidana Sthana 1/60]

### Management of complete stroke

Virechana therapy is the first line of treatment in pakshaghata (complete stroke). This line of treatment is most effective in the initial stage, i.e., within 2-6 weeks of the attack. After this period, it becomes a chronic condition, and then the general treatment protocols of disorders of vata are recommended.

When the hemorrhage happens at the area of mostly ner internal capsules, near the circle of Willis, huge edema develops around the area in the brain which is usually referred as peri -hemorrhagic edema. Furthermore, when oedema recedes, there will be some improvements in the signs and symptoms of a stroke. So, at this stage of edema, virechana works well. It was found to contribute significantly in reducing peri-hemorrhage edema.



**Image 2: Virechana in stroke**

The recent research on the management of stroke reveals that due to rapid onset, the primary injury of ICH is challenging to treat. Primary injury is followed by secondary injury

in the peri hemorrhagic region over several days to weeks and provides a longer treatment window than the primary injury. It is important to minimize the direct effect of clot-related hydrostatic pressure. Clot removal and/or hyperosmolar therapy by mannitol etc. is indicated for the purpose.

A collection of molecules called the 'complement system' plays a crucial role in the body's frontline defense against pathogens. But after a stroke, this system can trigger harmful inflammatory processes that damage the brain. Recent investigations in mice reveal that better outcomes can be achieved by addressing the immune response. It can be done by inhibiting its harmful effects immediately after stroke or promoting its ability to aid recovery.<sup>[1] [2]</sup>

So, virechana could be a better supplement in Ayurveda clinics for steroids and diuretics to deal with cerebral inflammation. In addition, the mechanism of purification therapies(shodhana) could flush out untoward oxidant molecules generated during the phenomenon of stroke. This can set the immune mechanism to normalcy.

When it is established that there is infarction and complete death of the nerve cells in complete stroke, it is usually treated as incurable. However, several patients with hemorrhagic stroke have got complete improvement in symptoms after Ayurvedic treatment. The slow auto-healing of neighboring tissues of infarcted focal area, the concept of neuronal plasticity, sensory-motor integration in the brain etc., can be the reasons behind these recoveries.

### Concept of avarana of vata in neurological diseases

"Avarana" pathologies are complex conditions having progressive nature and are difficult to diagnose and manage. Most of the progressive degenerative conditions of the brain do fall under the different kinds of Avarana.

E.g. 1: **Parkinsonism** can be considered as "kapha-avruta -vyana". The main symptoms are bradykinesia (gati sanga) and tremor. [Cha.Sa. Chikitsa Sthana 28]

Two intrinsic factors are leading to vitiation of vata

- a) Depletion of tissue elements (dhatu kshaya)
- b) Occlusion of its path (avarana)

In the case of parkinsonism, bradykinesia (gati sanga) is already there and the later vitiation of vyana vayu triggers the presentation of tremors. Here, avarana can act as an additional triggering factor. If the "anyonya avarana" takes place in between different forms of vata, it can manifest as other symptoms like speech disorders and dementation etc.

For example, avarana of vyana with prana vayu can lead to dementia in parkinsonism.

E.g. 2: **Multiple sclerosis or myelopathy:** It cannot be considered under any condition as pure vata vyadhi. The principles of urustambha or medo-avruta vata works well in this condition. Some of the presentations of multiple sclerosis or myelopathy are clearly described as the features of urustambha.

They are:

- no awareness of positioning of organs (samsthane aneeshvara)
- no deep sensations (peedane aneeshvara)
- no awareness or sensation of directional movements (gatyane aneeshvara)
- impaired gait (chaalane aneeshvara)
- impaired thermal sensations (sheeta sparsham na veti)
- Insecure foot stamping -unable to balance the body (padam cha vyathate nyastham)
- complete loss of proprioceptors from lower limbs (anyaneyau uru paadou manyate)

The above are indicative of different sensory palsies including affection of proprioceptors. Oleation (snehana) is contraindicated in these disorders. Rukshana is the first important line of treatment in such conditions. After rukshana could follow the routine Vata treatment measures.

Simple methods like dietary modifications as daily use of millets like barley(yava), raw vegetables without adding salt can produce rukshana in the body.[Cha. Sa.Chikitsa Sthana 27/25-26]. Excessive rukshana will lead to aggravation of vata leading to the symptoms like loss of sleep, increased pain etc; then one can shift to the line of treatment to oleation (snehana), sudation(swedana)etc.[Cha. Sa. Chikitsa Sthana 27/40-41]

Drastic purification (shodhana) procedures are to be avoided, and the treatment should be planned according to the strength (bala)of the patient. Rejuvenating therapy (rasayana) also have a great role, especially in dealing with neurodegenerative conditions. [Cha. Sa. Chikitsa Sthana 28/239-241]

## Conclusion

While dealing with diagnosed neurological diseases, an Ayurveda practitioner should analyze its pathology and manifestations based on Ayurvedic principles. All neurological cases cannot be invariably included under Vata vyadhi context. The diseases should be further investigated on the basis of etiopathogenesis (samprapti) under four main categories.

- A. Kevala vata (vata having no association with others)
- B. Samsrishta (vata having association with other components or essential elements of the body either direct or indirect –Avarana).
- C. Gatattva (vata getting fused with others in other places)
- D. Avritattva (vata activities / movements hampered / obstructed by others / within). The nature of Ayurvedic management can vary based upon the above pathological conditions (avastha).

### Interactive Session

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**1) Which is the best, effective, and safe Ayurvedic medicine for virechana in acute cerebrovascular stroke? Please share your experiences.**

Sneha yukta virechana (therapeutic purgation with unctuous substance) is mainline of treatment. Medicines like eranda taila (castor oil) or castor seeds (eranda beeja) processed in milk with a small amount of cow's urine (gomutra) for virechana in stroke patients. We can select the formulations for virechana according to the pathogenesis (samprapti) also. But, the strength (bala) of the patient should be considered with prime importance.

**2) What can be a standard research protocol for the management of neurological disorders because the conditions are highly person-specific?**

Ans: It is tough to answer the question because we have to develop such a protocol purely based on Ayurvedic principles. We have to re-modify the trials which had been conducted in pharmacological laboratories with modern standards. We have to re-design the clinical trials by keeping the essence of Ayurveda in it. At present, we cannot give such a single protocol. However, the development of such an Ayurvedic research protocol incorporating the necessary modern parameters also is under progress. In precise, it cannot be just clinical Drug Trial protocol but to bring the holistic concept of Ayurveda approach in research also.

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# Skin diseases in Integrative Medicine

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**Youtube link of recorded lecture:** [https://www.youtube.com/watch?v=fb3uVnn\\_lyc](https://www.youtube.com/watch?v=fb3uVnn_lyc)

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## Diagnosis and Management of Skin diseases in Integrative medicine

This article is based on a lecture delivered by Dr. S. R. Narahari, MD (dermatology in biomedicine), Director, Institute of Applied Dermatology, Kasaragod, Kerala, India, in Prof.M.S.Baghel Memorial Lecture Series on Aug 09, 2021.

### Integrative Medicine

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The use of interventions from traditional medicine alongside biomedical (Western medicine) treatments for a biomedical diagnosis is integrative medicine.<sup>[1]</sup> The assessments for improvement (clinical outcomes) are made using biomedical parameters. Integrative medicine mainly focuses on prevention, improvement in the quality of life and healing, and holistic treatment. The present article provides insights into integrative medicine practices in skin diseases with evidence from peer-reviewed publications from an integrative medicine treatment clinic; Institute of Applied Dermatology.

### Diagnosis through Integrative Medicine

In integrative medicine, a disease is diagnosed in contemporary medical science and its comparable condition in ayurveda following the patient examination together. The patient examination is done by the multisystem doctors' team separately based on their health system's guidelines. This approach allows a clinician to understand the patient's condition and helps identify the requirements, which is essential in the treatment using drugs from more than one system of medicine simultaneously. The findings of all the systems are documented to compare clinical features, prognosis, method of drug selection, and possible action of the drug in a specific disease condition. This process follows each therapeutic system's guidelines strictly. After examining multiple patients, a sthaneeya vikruti table was developed by collating all patients' information. The information that contradicts the

certain well-known facts of allopathy was excluded through mutual discussion. For example, the coppery red colour (thamra varna) of pitta dominant shwitra was excluded since it is a classical feature of lepromatous leprosy. The international experts reviewed the integrative medicine protocol and upgraded it whenever the multisystem doctor's team needed improvement.<sup>[2]</sup> For example, in Psoriasis, annular, erythematous, xerosis lesions with an uneven surface are diagnosed as guttae psoriasis. The sthaneeya vikruti table lists the comparable clinical terms as explained in Ayurvedic classics in the context of Kushtha are listed in table 1. It shows that guttae psoriasis resembles mandala kushtha.



**Fig 1: Guttate Psoriasis (Mandala kushtha)**

**Table 1: Sthaneeya Vikruti of Guttate Psoriasis (Mandala Kushtha)<sup>[3]</sup>**

Biomedical description	comparable terms in Ayurveda
Annular	Mandala
Erythematous / Hypopigmented	Rakta / Shweta varna
Coalescing lesions	Anyonya samsaktham
Oily in appearance	Snigdha varna
Elevated	Utsanna
Uneven surface	Khara

Clinical examination in integrative medicine gives a mutual orientation with different medical systems.

Dermatological features and their Ayurvedic correlations in Lichen Planus<sup>[4]</sup> are given in table 2.



**Fig 2: Lichen Planus**

**Table 2: Dermatological clinical features of Lichen Planus**

Biomedical description	Comparable terms in Ayurveda
Violaceous	Shyava/ Asita
Elevated	Utseda
Uneven surface	Khara
Pruritic	Kandu

Specific nomenclature resembling lichen planus is not observed in Ayurveda classics. However, in such cases, Ayurveda describes them based on pathophysiological features and still recommends treatments.

In table 3, symptoms of lymphedema and its relative biomedical terms in ayurveda and biomedicine are listed. For example, lymphedema is known as Shleepada in Ayurveda.<sup>[5]</sup>



**Fig 3: Lymphedema**

**Table 3: Features of lymphedema (known as Shleepada in Ayurveda) [6]**

Biomedical description	Comparable terms in Ayurveda
Dependent oedema of foot <sup>a</sup>	Bahushopha pada
Black pigmentation <sup>a</sup>	Krishna
Pricking pain or pain without any cause <sup>a</sup>	Theevra Thoda or Arthi or Animitta rujam
History of fever <sup>a</sup>	Bahusho jwara

Discharge <sup>b</sup>	Samsrava
Soft <sup>b</sup>	Mrudu
Heaviness <sup>b</sup>	Gurutwa
Largely oedematous <sup>b</sup>	Adhika shopha
The warmth of the limb/fever <sup>b</sup>	Jwara yukta
Oily/shiny <sup>c</sup>	Snigdha/Snigdha varna
With Nodules/ warty growth <sup>c</sup>	Bahukantakai parivrtam
Huge in size <sup>c</sup>	Sthoola
The feeling of heaviness[continuous] <sup>c</sup>	Guru Gurutwamanisham

a :Features of vata dosha dominant shleepada, b :Features of pitta dosha dominant shleepada, c:Features of kapha dosha dominant shleepada



**Fig 4: Vitiligo**

**Table 4: Clinical features of pitta dominant Vitiligo (Swithra)**

Biomedical description	Comparable terms in Ayurveda
Absence of hair on lesioned skin in hairy areas (differentiate it from Leprosy)	Roma vidhwamsa
Color of lotus petal	Padmapatraprateekasha

The above examples show that the final diagnosis could be similar even though the nomenclatures are different in two different medical systems. In an integrated system, both systems learn from each other.

**Local pathology (sthaneeya vikruti)**

While examining a patient in Ayurveda, the vitiated dosha must be carefully elicited through clinical examination. Ayurveda selects an appropriate drug for a chosen patient, whereas modern medicine selects a patient for a chosen drug. The examination of the status of dosha in skin diseases can be done based on clinical features, as shown in the example (table 5).<sup>[7]</sup>

**Table 5: Local pathologies and dosha specific clinical features in lymphoedema**

Vata dosha		Pitta dosha		Kapha dosha	
Ayurvedic terms	Comparable biomedical terminologies	Ayurvedic terms	Comparable biomedical terminologies	Ayurvedic terms	Comparable biomedical terminologies

Ruksha	Xerosis	Daha	Burning sensation	Snigdha/snigdha varna	Oily/ shiny
Bahushopha pada	Dependent edema of foot	Raktavarna	Erythema/redness	Shwetabha	Whitish
Sphutana	Fissures	Peeta varna	Yellowish discoloration	Drudham/sthiram	Organized
Krishna	Black pigmentation	Samsrava	Discharge	Bahukantakai parivrtam	With nodules/warty growth
Teevra toda/ arthi/ animittaruja m	Pain	Mrudu	Soft	Sthoola	Huge in size
Bahushajwara	History of fever	Gurutwa	Heaviness	Gurutwamanisham	The feeling of heaviness (continuous)
		Adhika shopha	Largely edematous	Sheetanvita	Cold to touch
		Jwara yukta	The warmth of the limb/ fever	Adhika shopha	Largely edematous



'Fig 5: Vata Dominance Vitiligo

**Table 6: Vata dosha specific features in vitiligo**

Symptoms	Allopathic terms
Ruksha	Xerosis on inspection
Aruna	Dusky red color
Mandala	Annular
Parusha	Xerosis on palpation
Paridhwamsi	Galloping lesions with repigmentation or exploded
Krishna	Dark repigmentation within the lesioned skin when examined for the first time

### Clinical methods in Ayurveda

The core concept of integrative medicine is 'adhere to the basics of each system of medicine being integrated. If another system cannot explain certain concepts of one medical system, it should not be rejected. Instead, it should be accepted and included. 'Amsha-amsha kalpana' of Ayurveda is comparable to the system by system examination of biomedicine. Researchers have shown that ayurvedic clinical examination goes beyond the ten types of clinical examination (dashavidha pariksha; the classical Ayurveda teaching).<sup>[8]</sup> Clinical methods in Ayurveda can be categorized as shown in table 7.

**Table 7: Methods of clinical examination in Ayurveda**

<b>Clinical methods in Ayurveda</b>	<b>Comparable biomedical terminologies</b>
Prakriti	Biological constitution of the body
Dosha	Primary life force
Dushya	Deranged basic body tissues and excretions
Desha	Habitat
Vaya	Age
Pramana	Body measurement
Sara	Firmness or strength
Samhanana	Acquired body build
Kala	Seasonal and duration
Vyayama shakti	Exercise capacity
Agni/Koshtha and Ahara	Assessment of digestive process and dietary habits and disorders related to it
Sattva	Behavior patterns
Satmya	Compatible dietary habits
Bala	Immunity of the patient
Roga avastha	Stage of the disease
Bhaishajya	Clinical pharmacology

The above details of patient information contribute to the Ayurvedic diagnosis and drug selection.

Dosha theories and individualized medicine are essential concepts of Ayurveda, meaning clinical presentation and its pathophysiology are of prime importance. In biomedicine, clinical presentations, diagnosis, and co-morbidities are also given prime importance. In addition, clinical methods and differential diagnosis are in greater detail than in Ayurveda.

### **Skin diseases in Ayurveda**

In Ayurveda, seven major skin diseases (maha kushtha) and 11 minor skin diseases (kshudra kushtha) are explained. Mainly this classification is based on the dosha combination. The skin lesion is examined according to color, shape, appearance, sensation, spreading in the body, pain, and discharge. For example, the symptoms of Kapala kushtha and its attributes are given in Table 8.

**Table 8: Clinical features of kapala kushtha**

Ayurvedic term	Biomedical description	Attributes
Krishna	Hyperpigmented	Color
Kapalabha	Dusky red and concave in shape like mud pot	Color and shape
Ruksha	Xerosis on inspection	Appearance
Parusha	Dry on inspection	Appearance
Tanu	Atrophic lesions	Appearance
Toda bahula	Severe pricking pain	Pain
Vishama visruthani	irregularly shaped	Appearance

In modern dermatology, skin lesions are also categorized based on history, morphology, pattern of distribution, and others. Rather than disease, those 11 minor skin diseases need to be considered as lesioned skin morphology. In the Institute of Applied Dermatology, Kasargod, Kerala, Ayurveda doctors are asked to determine dosha vitiation of specific skin lesions. Dermatologists also examine the same patients to confirm the biomedical diagnosis. Thus, the conditions are diagnosed and treated with an integrative approach.

### Stages of disease



**Fig 6: Stages of disease**

Ayurveda describes different stages of the disease by different names. For example, fig 6 can be discussed below.

Fig 6 (a) is Lichen rubour planus. Since it is erythematous (raga), annular (mandala) and papular (pidaka), this is considered as dadru in Ayurveda. Fig 6(b) &6(c) are hypertrophic lichen planus. There is hypopigmentation observed in the middle, surrounded by violaceous color. The lesions are thickened (ghana), elevated (utseda) with rough edges (rukshambahi). All represent Kapha vata dosha dominance. It is essential to know the stage of disease (roga avastha) to guide specific and selective treatment options.



In Fig 7, both limbs exhibit erythema (rakta varna), discharge (srava) and papular lesions. Therefore, it is considered as pitta predominant condition. However, the same treatment fails in one patient (7B) but improves the condition in another (7A). The 7B patient developed more pain, which is considered as aggravation of vata. Biopsy of the patient in (Fig 7B) revealed that the condition was lymphangiosarcoma arising from lymphoedema, while the patient who got relief by treatment is lymphoedema with lymphangiectasia and lymphorrhoea (Fig 7A).

## Treatment of skin disorders

### Importance of agni, ama



**Fig 8: Importance of ama pachana in vitiligo**

The assessment of agni (digestion and metabolism) and ama (accumulated undigested biological waste in the digestive tract) is vital for treating a skin disorder. The importance of treating ama is shown in figure 8. The ama aggravates by the treatment for vitiligo without ama pachana (digestion of ama). When ama is treated, the vitiligo also decreases. So if ama is present, treatment to remove it should be given at the beginning.

Integrative therapies should not compromise biomedical pathology, neither the principles of Ayurveda. Table 9 shows that mutual dialogue between the systems of medicine leads to the integrated treatment protocol

**Table 9: Integrated Ayurveda and yoga treatment for lymphology guidelines**

International Society of Lymphology consensus requirements <sup>[9]</sup>	Integrated Ayurveda elements
Skincare to improve the barrier function of the skin	Washing and soaking in hot infusion (phanta) to heal chronic wounds, care of bacterial entry lesions
Lymph drainage	Udwartana (Indian manual lymph drainage) and Yoga
Breathing	Yoga
Movements	Yoga
Compression therapy	Bandhana

The rotating ankle movements as a Yoga exercise (Gulpha chakrasana) are practiced for lymphoedema patients. An increase in radioisotope clearance from lymphatics of lower limbs with even small-amplitude ankle movements is reported by Prof Peter Mortimer.<sup>[10]</sup> Yoga and asana bring mobility, joint and muscle pump activation and dermal stretch. It is hypothesized that Yoga may induce drainage of lymph.<sup>[11]</sup>



**Fig 9: The patient arrived for treatment on June 2 2017 (left), and returned for follow up on January 21 2018 (right)**

The above approach to chronic disease care leads to better treatment not provided by a single system alone. For example, figure 9 below shows the response of Lymphatic Filariasis (lymphoedema) following integrative medicine treatment. A clinic to lab research-based developed from such studies might provide new treatments for chronic disease.<sup>[12]</sup>

### Conclusion

Integrative medicine bridges the gap between biomedicine and Ayurveda. It allows the repurposing of drugs within Ayurveda. Integrative medicine helps Ayurveda to stage the disease; by adopting modern investigations, effectiveness of treatment can be improved. At the same time, intersectoral collaboration helps modern medicine to use evidence-based traditional medicines. Prakriti based studies will add more knowledge to pharmacodynamics. Especially in chronic conditions, integrating Ayurveda and Yoga could be an example for WHO's innovative care for chronic conditions.<sup>[13]</sup> In order to develop a treatment protocol of integrative medicine, a sound knowledge of applied and translational science is required.

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# Psychiatric diseases

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This article is based on a lecture delivered by Dr. Narayana Prakash B, Chief consultant, Hitayurveda Health care, KR Puram, Hassan, Karnataka, India., in Prof. M. S. Baghel Memorial Lecture Series on Sep 09, 2021.

Ayurveda considers body and mind as interconnected entities. It does not separate one from the other in the holistic concept of Purusha. The treatment for body and mind is mentioned by ancient scholars for almost all diseases. Health is the foundation of virtue, wealth, enjoyment, and salvation; diseases are the destroyers of it.

## **General causes for the diseases of the mind**

Any abnormal interactions (excess, absent or erroneous) of mind, time, senses, and sense objects are primary causes of diseases. Rajas (representing activity or passionate involvement) and tamas (representing delusion or inhibition) are the most important pathogenic factors for vitiation of the mind. Abnormal sleep pattern also results in disorders of the mind. The inability to control negative impulses like anger, rash speech etc. may cause diseases of the mind. Severe physical injury may also cause diseases of the mind. Volitional transgression or intellectual errors (prajnaparadha), knowingly indulging in improper food and lifestyle habits, is the root cause for almost all diseases especially that of mind.

## **Role of intellect (buddhi)**

Thoughts are objects of the mind. The mind is continuously involved in process of thinking. The intellect (buddhi) controls the mind and regulates its thinking. It differentiates good and bad thoughts. Continuous indulgence of the mind in harmful thinking and the inability of intellect to control it results in diseases.

**Role of sense organs (indriya)**

Excessive or improper interaction of objects of senses with sense organs results in vitiation of mind. E.g. excessive usage of mobile phones results in mobile phone addiction, diseases of the eyes and brain, etc. Overuse, disuse, and misuse of sense organs lead to abnormality in rajas and tamas, which ultimately results in diseases. Gain or loss of desirable or undesirable things can cause psychic diseases.

**Role of inherent spiritual components (atmaja bhava)**

Spiritual (atmaja) and psychological (sattvaja) components present at the time of birth are responsible for the growth and development of each individual. 'Spiritual (atmaja)' refers to the genetic or ancestral components. Psychological (sattvaja) includes factors related to the strength of one's mind.

**Importance of food in mental health**

The use of incompatible dietetics (viruddhaahara), can cause psychic disorders. If food is proper, the mind will be healthy. Dietary regulations (aharavidhi) shall be followed while taking food. Then only does it nourish the body and mind. Food plays important role in the manifestation of many psychological diseases.

**Mental disorders in children**

In the pediatric age group, the mind is seldom afflicted. The psychic abnormalities start by the influence of surroundings as the child grows. The positive or negative inputs from the surroundings lead to nourishment or deprivation of the mind.

Excess food intake in childhood may result in laziness or heaviness of the body. This leads to accumulation and further acquisition and greed which is the cause of all abnormalities. When they reach adolescence, anger, lust, cruelty, aggression, anxiety, distress may also happen.

**Diagnosis of mental disorders**

All the physical abnormalities must be ruled out before labeling a person as a psychiatric patient. In many physical diseases like hypothyroidism, psychiatric manifestations like depression are present. Careful observation of the patient is needed for proper diagnosis. Tools for a mental examination of a patient are described by ancient scholars. For example, the state of grief should be inferred by despondency, joy by exhilaration, pleasure from a sense of satisfaction, fear from dejection, etc.

## Mental strength

The condition of mind (sattva) is also important for mental health. A person with good mental strength (pravara sattva) seldom suffers from any mental disorders. People with medium and low mental strength people suffer from psychic disorders. This influences the prognosis of diseases, too. Diseases occurring in a medium mental strength person can be easily cured, but the treatment is difficult in a person with low mental strength.

## Types of mental patterns

**Table 1: Types of mental patterns**

Sattva	Types
Shuddha (purity)	7
Rajasa (aggression)	6
Tamasa (inhibition)	3

The 7 types of shuddha sattva (pure-minded) people are productive for society. Rajasika and tamasika persons are harmful to society due to their destructive tendencies.

## Major psychiatric diseases

### Insanity (unmada)

It is an unstable condition of mind, understanding, consciousness, perception, memory, inclination, character, behavior, and conduct. [Cha.Sa. Nidana Sthana 7/5]

### Etiopathogenesis of insanity

The weak-minded or timid person is more susceptible to insanity. When his mind is afflicted by raja and tama, dosha vitiation due to unwholesome diet, chronic physical illness, excess passion, anger, greed, excitement, fear, attachment, exertion etc. this condition may result in insanity.

### Clinical features

The affliction of mind: Leads to illusions, delusions, and hallucinations.

The affliction of intellect: Leads to poor decision making or failure to decide.

The affliction of consciousness: Loss of orientation towards person, place, and time is lost.

Impairment of memory (smruti vibhrama): Loss of immediate, recent, and/or remote memory.

Impairment in desires (bhakti vibhrama): Excessive interest, withdrawal symptoms or very odd interests are observed that are different from past interests.

Impairment of habits (sheela vibhrama): Inappropriate reactions like exaggerated emotions at improper places and times are observed. E.g. Laughing by hearing the sad news. This is seen in general anxiety disorders, stress headaches, etc.

Impairment in body activity (cheshta vibhrama): Controlled and relevant motor activity gets impaired. There might be hyperactivity or hypoactivity.

Impaired social activity (achara vibhrama): The behavior and social attitude of the patient would be unfair, improper, and irrelevant. He may violate all ethics and manners. For eg. the patient may remain undressed, unhygienic, or have odd dressing.

### **Types and Clinical features**

#### **Vata dominant unmada:**

Constant wandering; sudden spasm of eyes, eyebrows, lips, shoulder, jaws, forearms, and legs; constant and incoherent speech; patient continuously smiles or laughs or dance; play musical instruments in inappropriate situations; froth comes out of mouth, etc.

#### **Pitta dominant unmada:**

Anger and irritation; inflicting injury to themselves and others; ferocious look, desire for shade, cold water, and foods.

#### **Kapha dominant unmada:**

Observance of silence; desire for solitude; discharge of saliva and nasal secretions; aversion towards cleanliness; aversion towards food etc.

#### **Sannipatika unmada:**

All clinical features are observed in this type.

#### **Agantuja unmada (exogenous type):**

Intellectual errors (prajnaparadha) are the root cause of this disease. Sinful activities in a past life are also one of the causes. Various behavior patterns are observed in this type. The person may start behaving like deva (god), rakshasa (demons), etc. The association of a specific dosha cannot be seen in this condition. The person may exhibit superhuman powers like excessive physical strength and energy; unnatural power of retention and memory etc. Certain conditions like devonmada, gandharvonmada, and yakshonmada do not require treatments as they do not cause any harm.

Different disorders in conventional psychiatry like acute mania, bipolar disorders, manic disorders, depression, schizophrenia can be understood under the broad umbrella of unmada.

### **Atattvabhinivesha**

Abnormal thinking pattern is observed in this condition. The impaired intelligence, and abnormal psychic pattern, as in obsessive-compulsive disorders (OCD) is seen.

### **General principles of treatment**

#### **Preventive measures**

Proper diet is needed for proper mental health. A wholesome food should be taken as per dietary guidelines (aharavidhi). Re-vitalization through a code of conduct (achara rasayana) is also a preventive measure. This can be considered behavior therapy in Ayurveda. Rejuvenation (rasayana) and aphrodisiac therapy (vajikarana) are very important for the prevention as well as treatment of all sorts of psychic disorders. Brain tonics, memory boosters, nootropics, and vitalizers (medhya rasayana) should be taken daily for the improvement of intellect and prevention of psychic disorders.

#### **Three types of treatments**

The three major types of treatment for mental disorders are

1. Divine/ spiritual therapy (daivavyapashraya)
2. Rational therapy based on reasoning (yuktivyapashraya)
3. Psychotherapy (sattvavajaya)

**Divine/ spiritual therapy (daivavyapashraya):** This includes incantations (mantra), medicine, wearing gems, auspicious offerings, oblations, offerings to the sacred fire, following spiritual rules, fasting, obeisance to gods, etc. The worship of Lord Rudra is specially mentioned and is in practice also.

**Rational therapy based on reasoning (yuktivyapashraya):** This consists of a proper dietetic regimen and medication.

**Psychotherapy (sattvavajaya):** It includes the restraint of the mind from harmful/unwholesome objects. It is specifically implemented in anxiety and depression.

All these therapies are used in the comprehensive management of psychic disorders.

#### **General treatments for unmada**

Panchakarma treatments like oleation (snehana), fomentation (swedana), emesis (vamana), purgation (virechana), enema (basti), venesection (siravyadha) are indicated according to the condition. Some other specific treatment modalities like tying (bandhana),

confinement (avarodhana), frightening (vitrasana), forgetfulness (vismapana), etc. are also mentioned to control the violent tendencies of patients.

### **Treatment of vata dominant unmada**

- Intake of ghee (snehapana) with purana ghrita, lashunadya ghrita, kalyanaka ghrita, mahakalyanaka ghrita, mahapaishachika ghrita, ashwagandha ghrita etc.
- Mild purification
- Unctuous enema (sneha basti) preferably with a combination of two unctuous preparations
- Oil application on the head: This helps to induce sleep and calms down the patient.
- Nasal application with Anu taila or ghee preparations.
- Collyrium with Brahmyadi varti
- Mineral (rasa) preparations: Manasamitra vati, Unmadagajakesari, Brahmi vati, Bruhatvatachintamani, Vatagajankusha rasa, Mahavatavidwansa rasa, Sameerapannaga rasa.
- Fermented preparation (Asava/arishta): Saraswatarishta, ashwagandharishta, balarishta
- Decoctions (kashaya): Kalyanaka/ Varavishaladi kashaya, Brahmidrakshadi kashaya, Mamsyadi kashaya
- Electuaries (lehya): Ashwagandhadi, Ajashwagandhadi, Ajamamsa rasayana, Brahma rasayana
- Powders (churna): Saraswata, Brahmyadi, Sarpagandadi churna, combination of Convolvulus prostrates (shankhapushpi), Bacopa monnieri (brahmi), Tribulus terrestris (gokshura) and Rauvolfia serpentine (sarpagandha).

### **Treatment of pitta dominant unmada**

- Purgation (virechana) is the first principle of treatment. For internal oleation Tiktaka ghrita, Brahmi ghrita, Shatavari ghrita, Phalasarpi etc. are used.
- Pouring of medicated buttermilk (takradhara) or medicated milk (ksheeradhara)
- Anointing head (shirolepa) with Amalakyadi yoga
- Expressed nasal medication (avapeedana nasya)
- Mineral (rasa) preparations: Kamadugha rasa, pravalapanchamrita rasa, manasamitra vati, brahmi vati, pravalapishti, rajata bhasma.
- Fermented preparation (asava/arishta): Chittachandirasava, shrikhandasava.
- Decoctions(kashaya): Tiktaka, Brahmidrakshadi, Guduchyadi
- Powders (churna): Brahmyadi, chandanadi, avippattikara, shatavaryadi
- Electuaries (Lehya): Drakshamalaki, Amalaki rasayana, Drakshadi, Kushmanda rasayana

### Treatment of kapha dominant unmada

- Emesis (vamana) and purgation (virechana) with purana ghrita, hingwadi ghrita, panchagavya ghrita, mahapanchagavya ghrita, lashunadi ghrita
- Powder nasal medication (pradhamana) with shwasakuthara rasa, smritisagara rasa, vachadi churna etc.
- Pouring of medicated buttermilk (takradhara) or medicated decoctions (kashayadhara)
- Mineral (rasa) preparations: Manasamitra vati, smritisagara rasa, brahmi vati, sameerapannaga rasa.
- Fermented preparation (Asava/arishta): Mritasanjeevani sura
- Powders (churna): Vachadi churna, kushthadi yoga

### Treatment of atattvabhinivesha

Purification through panchakarma procedures is the principal treatment. Nourishment therapy is indicated with brain stimulants. Panchagavya ghrita with juice (swarasa) of Bacopa monnieri (Brahmi) or other rejuvenating preparations are advised. Psychological counseling is also advised.

### Some other related conditions and its treatments

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#### Sleep disorders

**Insomnia:** Oil massage; bath; meat juices of domestic, marshy, and aquatic animals; milk, wine, cheerfulness of mind, perfumes, mild massage, application of medicated paste in head and face, use of comfortable beds are advised in insomnia.

**Hypersomnia:** Purgation (virechana), emesis (vamana), nasal medication (nasya), venesection (raktamoksha), worries, medicated smoke inhalation, fasting, uncomfortable beds are advised for those who have excessive sleep.

#### Other psychic disorders mentioned in Ayurveda

- Anxiety disorders (chittodvega)
- Phobic disorders (bhaya)
- Attention disorders (anavasthitachitta)
- Hypochondriasis (gadodvega)
- Dissociative disorders (smaraaroga)
- Personality disorders (rajasika and tamasika kaya)
- Chorea (tandavaroga)
- Substance abuse disorders (Madatyaya)
- Seizure disorders (Apasmara)
- Stress-related disorders (manodukhajanmada)

- Perverted sexual disorders (asyeka, kumbika etc.)

### **Conclusion**

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In Ayurveda, elaborate descriptions of mental disorders with their management is available. In day to day practice mental disorders are well managed by Ayurvedic interventions. It requires a holistic approach including management with medicines, counseling, and spiritual therapies.

### **Further reading**

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- Sushruta, Sushruta Samhita, English translation and edited by Kaviraj Kunjalal Bhishagranta; published by Chowkhambha Sanskrit series, Vol.II, Uttara tantra, Chapters 60, 61 and 62
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## Emergency medicine in Ayurveda

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**Youtube link of recorded lecture:** <https://www.youtube.com/watch?v=ngkVy5Dsq4c>

### **Principles of Diagnosis and Management of medical emergencies in Ayurveda**

This article is based on a lecture delivered by Dr. Upendra Dixit, Chief consultant, Dixit Ayurveda, Goa, India., in Prof.M.S.Baghel Memorial Lecture Series on October 09, 2021.

The Atharvaveda quotes assurance statements by the sages to the person on the death bed.

“Do not fear. You won’t die. We will save your life.” [Atharva veda 5.30.8]

Ashtanga Hridaya quotes, Ayurveda can save the life of a person from the noose of death by using various measures. [A.Hr.Uttara tantra 44/74]<sup>[1]</sup>

It shows that medical emergency measures were handled successfully in ancient times to save human lives. Though no science can completely assure to prevent death, the physician has to try to save a life until the last breath. The physician is required to study the management of medical emergencies to find better, safe, and cost-effective healthcare solutions to save lives.

### **References of emergency conditions in Ayurveda texts**

The word ‘atyaya’ is used to denote destruction or death. [Chakrapani, Cha.Sa. Sharira Sthana 1/50] [Dlahana, Su.Da. Sharira Sthana 10/19-20].<sup>[2]</sup> The word ‘atyayika’ denotes the quickest possible treatment done to protect life without any delay. [Dallhana, Su.Sa. Sharira Sthana. 8/5]<sup>[2]</sup> [Hemadri A.Hr.Sutra Sthana 2/33]<sup>[1]</sup> Therefore, the medicines to be used in medical emergencies shall be ready with the physician for first aid emergency treatment, even if the patient is to be referred to higher critical care centers.

The word niratyaya explains how diet, various activities, and treatments can be performed in such a safe way that complications leading to severe consequences and emergencies can be prevented.

## Medical emergencies

American college of emergency physicians has listed 1733 emergency conditions.<sup>[3]</sup> It shows the scope of emergencies occurring in various medical fields. From this, we can understand that emergency medicine is a vast field. Ayurveda has a lot of potential to contribute to medical emergencies. However, it is not much explored in the current practices of Ayurveda. Although a few Ayurveda consultants are working in this field. Recently AVP research foundation, Coimbatore has undertaken a project on Ayurvedic emergency medicine. Not much literature is available to study the subject of management of emergency conditions through Ayurveda. A series of articles entitled 'Basic principles of emergency treatment of Ayurveda', published in AYU Journal written by Vaidya Mhaskar V.B.<sup>[4]</sup> is one of the best sources to learn this topic. Ayurveda especially Brihat Trayi (texts termed as a great triad) provides lot of references regarding emergency conditions and their treatment. Here are a few examples:

The condition of Vata dominant prameha (obstinate urinary disorders including diabetes) is incurable and has potential of causing emergency conditions. [Cha.Sa. Nidana Sthana 4/38]

The pitta dominant gulma should be treated as an emergency condition. [Cha.Sa.Chikitsa Sthana 5/114]

The cough (kasa) due to chest injury shall be treated as an emergency condition. [Cha.Sa. Chikitsa Sthana 8/134]

The erysipelas (visarpa) due to vitiation of all dosha is considered as an emergency condition. [Cha.Sa.Chikitsa Sthana 21/41]

The physician shall treat weak patients with utmost care to prevent complications. [Cha.Sa. Vimana Sthana 8/94]

In an emergency condition, one should administer the purification therapies (shodhana) with great care. [Cha.Sa.Vimana Sthana 8/127]

For understanding emergency treatment , all such references need to be compiled and thoroughly studied. The author has made efforts in this regard.

## Causative factors of emergency or life-threatening condition

From all textual references, it can be understood that certain factors cause most emergencies. They are as below:

- Marma (vital organs)
- Rakta (blood)

- Oja (immunity and essence of body tissues)
- Udaka (fluid)
- Prana vayu (a type of vata dosha)
- Pranavaha Srotasa (respiratory system transporting vital air)
- Agni (digestion and metabolism)
- Udana vayu (a type of vata dosha)
- Dhatu gata avastha (state of the affliction of tissues)
- Shulopahatava ( Pain threshold or severity)
- Upadrava jushtata (comorbid conditions or complications of various diseases)
- Janapadodhwasa (epidemics and pandemic conditions)

### Concept of prana in Ayurveda

The term prana is used for the vitality of life or life force. It is essential to understand the concept of prana and its importance in life-threatening emergency conditions. There are twelve sites of vitality (prana). Ayurvedic texts use the word 'Prana' as a synonym for certain body constituents. Prana is also used as a prefix to the names of certain body constituents. This indicates these body constituents are most vital, for saving a life. Agni, Soma, Vayu, Sattva, Rajas, Tamas, Atma and Pancha mahabhuta. [Su.Sa.Sharira Sthana 4/3]<sup>[2]</sup>

The two temples, the three vital organs, the throat, rakta dhatu (blood), shukra dhatu (reproductive tissue), oja (the vital essence), and the anus are ten sites of life forces (prana). [Cha.Sa.Sutra Sthana 29/3]

Prana vayu is one of the five types of Vata dosha [Cha.Sa. Chikitsa Sthana 28/234]. Food (anna) [Cha.Sa.Chikitsa Sthana 24/60], water (udaka) [A.S.Sutra Sthana.6.11]<sup>[5]</sup> and strength or immunity (balam) are factors influencing vitality [Dalhana, on Su.Sa.Sutra Sthana 17/13].<sup>[2]</sup>

The vitality from external sources or nature (bahya prana) and internal vitality (abhyantara prana) sustain human life. The vitality from external sources or nature is converted into internal vitality through channels of transportation and transformation of vitality (pranavaha srotasa) [Su.Sa.Sutra Sthana 17/13].<sup>[2]</sup> The vitality especially depends on blood tissue (rakta) [Cha.Sa.Sutra Sthana 24/4], essence (oja) (Chakrapani on

Cha.Sa.Sutra Sthana28/4], digestion, and metabolism (agni)[Cha.Sa.Chikitsa Sthana15/3,4]. It is presented through sensory and motor organs (indriya)[Cha.Sa.Sutra Sthana1/48].

Injury to the umbilicus (nabhi)[Su. Sa.Sharira Sthana 7/5]<sup>[2]</sup>, channels carrying nutrient fluid (rasavaha srotasa)[Su. Sa.Sharira Sthana 9/12]<sup>[2]</sup>, blood vessels (sira) can lead to sudden death(Dalhana on Su.Sa.Sharira Sthana 7/5).<sup>[2]</sup>

### **Commonly observed clinical features in an emergency:**

- Acute and severe pain in vital organs like cardiac pain or abdominal pain etc. as observed in trimarmiya chikitsa chapter of charak Samhita. It is mentioned as sahasa daruna marmaruja.
- Acute hemorrhage or excessive bleeding (sahasa atyartha raktasrava)
- Dyspnoea (shvasakashta)
- Sudden loss of sensation (sahasa indriyanasha)
- Unconsciousness (sanjna nasha)
- Syncope (moorchha)
- Acute organ failure
- Clinical features of the affliction of vital organs can cause death within seven days (sadya pranahara marma) like loss of perception, sudden vomiting, excess perspiration, a sudden feeling of heaviness [A.Sa.Sharira Sthana 7/47]<sup>[5]</sup>

The clinical features of near-death patients are described in chapters of Indriya Sthana.

### **Diagnostic tools**

- In addition to the above clinical features, arishta or fatal signs observed in the patients are tools to diagnose emergency conditions. These appear suddenly, without any known cause, with the constantly deteriorating condition of the patient.
- Changes in breathing patterns or respiration can indicate emergency conditions. Guidelines about this can be referred from the clinical features of affection of channels of transportation and transformation of prana (pranavaha srotasa). [Cha.Sa. Vimana Sthana 5/8]The patterns of respiration are described under types of shwasa like maha (a type of shwasa disease), urdhva (a type of shwasa disease) and chhinna (a type of

shwasa disease) shwasa [Cha.Sa.Chikitsa Sthana 17] can be studied to understand emergency conditions resulting into death.

- Dehydration status – can be understood from the clinical features of affection of channels of transportation and transformation of udaka (udakavaha srotasa). [Cha.Sa.Vimana Sthana 5/8]
- Consequences of excessive emesis and purgation (atiyoga of vamana and virechana) are described showing emergency conditions. Effects ranging from mild degrees like dryness in the throat to severe effects like dilatation of pupil as precursor to death are described. [A.Sa.Sutra Sthana 27/20]<sup>[5]</sup>
- Status of consciousness and orientation

### **Consequences of the affliction of marma**

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Injury to different vital structures (marma) can have various consequences. Certain marma called 'sadyopranahara marma' can lead to death instantaneously or within a week. General signs and symptoms can guide about injury to marma, and accordingly the patient can be cared for. The clinical features are numbness of the body (deha supti), heaviness, confusional state, desire of cold things, excess perspiration, syncope, vomiting, dyspnoea, [A. Sa. Sharira sthana 7/47]<sup>[5]</sup>

Injury to marma causes vasodilatation and profuse bleeding. This may lead to death. [A.Hr.Sharira Sthana 4/65]<sup>[1]</sup>

### **Clinical assessment - Nadi (pulse examination)**

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Texts like Yogaratnakar etc. describe pulse examination. Here certain readings about pulse can indicate emergency conditions and imminent death of the patient. E.g. the pulse is irregular and unstable in case of emergency conditions. [Yoga Ratnakar] The other clinical parameters can be implied to assess critical conditions.

### **Life-threatening conditions**

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Certain diseases are specifically mentioned as resulting in death. In this regard, the following chapters shall be studied in depth to understand critical conditions in Ayurveda.

- Jwara specifically sannipatika jwara (due to combination of all dosha) [Cha.Sa.Chikitsa Sthana 3]
- Shwasa and Hikka (respiratory failure) [Cha.Sa.Chikitsa Sthana 17]
- Sanyasa (coma) [Cha.Sa.Sutra Sthana 24]

- Visarpa (eryspelas) [Cha.Sa.Chikitsa Sthana 21]

### **Medical ethics in critical conditions**

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The patient on the death bed may not survive due to his predestined life span. However, the physician shall treat the patient till the last breath with a hope of life. Proper consent shall be taken from the close relatives of the patient after informing them of details about the critical condition. [A.Sa.Sharira Sthana 7/75] <sup>[5]</sup>

### **Management of emergency conditions**

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The principles of management of emergency conditions include:

- Protecting prana and marma (vital organs and structures) especially heart, brain, and urinary system
- Use of antidotes or medicines used in poisoning (agada)
- Protection and enhancement of oja (essence) and strength or immunity (bala)
- Protection and maintenance of digestion and metabolism (agni)
- Protection of sensory and motor organs (indriya) that are sites of consciousness (chetana)

### **Emergency medicine kit**

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A kit of potent Ayurveda medicines shall always be ready with the physicians. It consists of the following:

- Honey
- Ardraka sattva or ginger juice
- Levigating stone
- Suvarna sutashekhara pottali
- Hemagarbha pottali
- Trailokya Chintamani rasa pottali
- Other life-saving medicines and instruments

To make proper use of these medicines to save the life of the patients, it is necessary to understand the exact mode of action of these medicines. With such knowledge, the physician can select appropriate medicine in the appropriate conditions. Here is a summary of the mode of action of these three most important medicines-

### 1. Hemagarbha

- The veiling of tamas (inertia) on intellect (buddhi) and mind (mana) is removed and consciousness is regained and maintained.
- Indriya (sense organs) are activated.
- Chhedana (pertusion) of kapha dosha removes obstruction in the movement of vata dosha
- Restore normal movement of vata, by correcting avasada (slackening) – especially of prana, udana, and samana.
- Maintains and increases heart rate, pulse rate, and heart rate in case of avasada (slackening)
- Activates and promotes agni (deepana)
- Specially used in Shlaishmika (kapha dominant), Antrika (intestinal affliction), and shvasanaka sannipata (respiratory affliction), tamaka-maha and urdhva shvasa, sanyasa etc.

### 2. Trailokyachintamani rasa

- Removes the veiling of abnormal kapha dosha
- Restores normal movements of vata dosha, by correcting avasada (slackening)
- Agni- dhatvagni deepana ( activates- ignites agni)
- Instantaneously increases oja
- Destroys visha (~ poisons/toxins)
- Protects heart and senses
- Specially used in shlaishmika and shvasanaka sannipata.

- Hridroga caused by obstruction of channels (srotas) by kapha, ama, etc., Also in Hridroga caused by sudden depletion of oja or psychological factors like grief etc.
- By controlling actions of prana, activities of senses(indriya) are maintained, Avasada(slackening) is removed, which controls and maintains normal functions of the heart and lungs.
- Provides immediate relief in hritshoola(angina)
- Controls actions of vyana, thereby the actions of muscles
- Vishanashaka (destroys toxins)
- Specially used in critical conditions of hemiplegia (pakhaghata) and other vata dominant vyadhi, in patients with severe debility

### 3. Suvarna Sootashekharā

- Best medicine for restoring the normalcy of all three dosha.
- Maintains and regulates normal functions of all five types of vata dosha.
- By regulating actions of prana, regulates functions of senses(indriya), mind(mana), and intelligence(buddhi)
- By regulating the actions of prana, regulates heart and respiration rate.
- By regulating actions of samana, causes agni deepti(activates- ignites agni), regulates secretions of pitta dosha, regulates gastrointestinal motility, regulates assimilation, separation, and absorption process (sarakitta vibhajana)
- Samana, regulates sweating and maintenance of body temperature and energy levels.
- Vyana, regulates circulation, sweating and bleeding process, movements of muscles, and other physical activities.
- Apana, regulates defecation, micturition, etc. processes.
- Performs pachana of sama pitta, especially with amla, drava, and visra guna.
- Controls kapha
- Destroys visha(~ poisons/toxins)

These pharmacological activities are observed in clinical experiences. More research on experimental models can be done on these medicines. Usually, these medicines are levigated on a specific levigating stone and applied on the gums of unconscious patients. For levigation, a small drop of honey and in specific conditions, 2-3 drops of ginger juice are used. The medicine is in minute quantity, so chances of entering into the respiratory tract are minimum. The medicine starts showing its actions within a few seconds. Many of such patients are in the intensive care unit (I.C.U.), on monitors. In such patients, the changes in heart rate, blood pressure, respiratory rate, etc. are observed instantaneously. E.g. The hemagarbha pottali was observed to instantaneously increase heart rate and improve the rate of respiration after application on gums in intensive care patients. Further research is needed to study the exact mode of action of these medicines.

Ayurveda has described the criteria for prognosis of patients. Charaka Samhita presents a separate section on the prognosis of the patients and specific signs and symptoms observed in the critical patients (arishta), indicating certain death in the near future. In such patients, a complete cure is not possible. But even in these patients, it is observed that the life span can be extended for some time with Ayurvedic emergency medicines. If such signs and symptoms (Arishta), are not observed, the patient can survive for a longer period.

### **Importance of food**

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Food plays an essential role in maintaining vitality in critical conditions. If the food is not given as per the digestive capacity (agni) of the patient, then it leads to the formation of toxic metabolites (ama). This further blocks the channels of transportation of nutrients (srotas) and worsens the condition. Therefore, easy-to-digest food like green gram soup (mudga yusha) is advisable to be given in critical cases. The wholesome food that is suitable to the patient and helpful in treating underlying disease conditions is advised.

### **Experience-based evidence**

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It is difficult to maintain documentation of all cases while managing emergency medical conditions because the priority of the physician at that time is to save the life of the patient. There are further limitations to access case records of the patients from hospitals. The author has tried to maintain the records, as far as possible. The author has treated more than 170 critical patients in intensive care units of various hospitals in Goa and outside. In many of these patients, when the ongoing modern medical treatment was not showing the desired effects, Ayurvedic treatment was given as an adjuvant. Some patients were treated with Ayurvedic treatment only. Even during the pandemic of SARS COVID 19, around 40 patients showed better improvement when Ayurvedic treatment was given as an adjuvant to the modern medicines.

## Acute conditions

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Ayurveda has the potential to treat various acute conditions. For this, various methods of management and quick-acting medicines are available. The author has experienced various such conditions like high fevers, acute asthmatic exacerbation, hiccups, hypertension and hypotension, diarrhea including cholera, and gastroenteritis. In such acute conditions, it is experienced that Ayurveda has quick-acting medicines by which improvements can be observed right from the first dose, and within a few minutes changes are noted.

## Case reports of critical cases

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Following case reports are available with necessary investigation reports, discharge summaries and videos wherever necessary.

### Case 1

A 68-year-old male patient with a history of hypertension for 10 years, alcoholic liver disease, cirrhosis, and adenocarcinoma of stomach was treated with ayurvedic treatments. He was in a comatose state after suffering from seizures, cerebrovascular stroke due to intracranial hemorrhage, and hemiplegia. He was not responding to modern treatment in the hospital ICU, therefore was taken for home care treatment. Then onwards he was only on Ayurvedic treatment. The patient was treated with medicines like sutendra rasayana with honey, Arpisa rasayana, a combination of dhatri, raktapachaka and dhamasa . tapyadi loha, swarna raja vangeshwara rasa, haridra ghana, kukkuta nakhi, rasa sindura with honey. The patient regained consciousness in three to four days and was relieved of major symptoms. He survived for more than one and a half years.

### Case 2

A thirty-year old male patient suffered from a road traffic accident. He was in a coma due to traumatic brain injury. The injury included 10x,2x deep lacerated wound on right side forehead, brain contusion at the frontal lobe, and intraventricular bleeding on the right side. Since he was not responding to ongoing treatment in the ICU, in addition to the conventional treatment, the patient was treated with Ayurvedic medicines like swarna sindoor (30 mg) mixed with haridra ghana and honey applied on the gums of the patient. The patient became semiconscious in two days and improved in orientation, too. The patient was further treated with Yogendra rasa (60 mg). He regained consciousness and recovered completely.

### Case 3

A 43-year-old male patient suffered from skull and facial bones fractures due to a road traffic accident 10 years ago. He suffered from epilepsy and was taking treatment. The patient-reported history of excess mental stress, excess fasting (paryushana upavasa in the Jain tradition), anorexia, and anger. He suffered from convulsions and became unconscious

due to intracerebral hemorrhage of 7.9 x 5.6 cm size in right temporoparietal region. Fever and sepsis-like conditions were observed. Since he was not responding to the ongoing ICU treatment, he was treated with Ayurvedic medicines like sindura bhushana mixed with haridra ghana every four hours applied on gums. Medicated water processed with gold (Suvarna siddha jala) and green gram soup was given to the patient through Ryle's tube. Jaymangal rasa and guduchi ghana was added to treat fever. The fever subsided in one day and subsequently, the patient started maintaining oxygen levels. The life support system was taken off. The orientation and consciousness improved significantly in a week of treatment. Arpisa rasayana, Jaymangal rasa, vara, and raktapachaka medicines were continued for the next two weeks, till the complete recovery of the patient. Significant clinical improvement in neurological functions was observed in this patient. The patient recovered completely and he is well to date.

#### Case 4

During May and June 2021, the author treated more than 30 ICU patients of COVID 19. Here, Ayurvedic treatment was given as adjuvant treatment, along with the ongoing ICU treatment. It was observed that with adjuvant Ayurvedic treatment, the patients had better and quicker improvement and better survival chances.

A 72 years male patient with h/o DM, HTN, IHD, PTCA was COVID +\_ve, admitted in the hospital with HRCT score 17/25, CORAD scores 6, and SPO2 84. He was suffering from high fever, breathing difficulty, and severe debility. Since expected improvement was not observed even after 9 days of conventional treatment, Ayurvedic treatment was started as an adjuvant. Sootashekhara with Vasa, Haridra, Kantakari, Saptaparnadi thrice a day was prescribed. Triphala with Arogyavardhini and Rasapachaka were given in between meals. Jayamangal Rasa with Rasaka was given two times in the morning and evening. Fever subsided within 2 days. After which, mahalakshmvilasa was added. He started maintaining O2 levels and the mask was removed within 6 days. He recovered completely.

There is a wide scope of research on the role of Ayurveda medicines in the treatment of critical and medical emergency conditions. It can be helpful to provide a safe, cost-effective, and better solution to extend life with a higher survival chance.

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# Rheumatic diseases

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**Website link:**

[https://www.carakasamhitaonline.com/index.php?title=Rheumatic\\_diseases](https://www.carakasamhitaonline.com/index.php?title=Rheumatic_diseases)

**Youtube link of recorded lecture:**

<https://www.youtube.com/watch?v=2CoHCVGG27w>

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## Rheumatism & Rheumatology

Diseases that affect the muscles, bones, joints, ligaments, and tendons resulting in pain, swelling, stiffness, and potentially causing joint deformities are called 'rheumatic disorders'. The study of such associated conditions is called 'rheumatology'. Rheumatologists treat a group of diseases called "systemic autoimmune diseases", otherwise termed as "collagen vascular diseases" or "connective tissue diseases". This is a group of diseases where a person's immune system attacks his body systems. This ends up causing inflammation, pain, swelling, and organ damage. These may affect the eyes, skin, nerves, kidneys, lungs, heart, and other internal organs. Rheumatoid arthritis, systemic lupus erythematosus, Sjogren's disease, scleroderma, polymyositis, and vasculitis, etc. are some examples.

The term rheumatism includes a variety of disorders marked by inflammation, degeneration, or metabolic derangement of connective tissue structures (especially joints and related structures). The clinical features include pain, stiffness, or limitation of movement. It includes such disorders as arthritis, osteoarthritis, bursitis, and sciatica.

## Ayurvedic perspective

Involvement of three dosha and middle pathways of the manifestation of diseases (madhyama rogamarga) can be inferred. Inflammation, degeneration, and metabolic

derangement represent tridosha. Involvement of joints and connective tissue represents the middle pathway of manifestation of diseases (madhyama rogamarga).

The Ayurvedic concept of 'joint' – termed as 'sandhi' represents not only bony joints but all connective tissues and collagen vascular disorders. [A. Hr. Sutra Sthana 12/47]<sup>[1]</sup> The connective tissues in the body are all affected by inflammatory, degenerative, or metabolic pathologies. It shows derangement of dosha in various permutations and combinations. The simultaneous involvement of multiple structures in the disease pathogenesis makes the disease difficult to treat. [A. Hr. Sutra Sthana 13/21]<sup>[1]</sup> Even in conditions like rheumatoid arthritis (vatarakta) vascular involvement is also very clearly indicated. [A. Hr. Nidana Sthana 16/18]<sup>[1]</sup>

### **Role of ama**

'Ama' is a key concept in the Ayurvedic understanding of physiology, pathology, and therapeutics. Rather than being a single entity or substance, ama denotes the deranged process of digestion and metabolism. It leads to metabolic byproducts in the body, which cannot be neutralized or eliminated by the body. It can be considered as a state of a substance in which it is not undergoing any further transformation, either digestion or metabolism. In Ayurveda, ama has been defined from three viewpoints. On a closer examination, it can be understood that these three viewpoints represent ama in its totality. They are as below:

1. Ama is the byproduct of impaired digestion.
2. Ama is the accumulation of unexpelled wastes in the body.
3. Ama is the first expression of aberrations in the physiological process in the body.[Madukosha-M.Ni. 25/1-5]<sup>[2]</sup>

Ama formation may be due to inflammatory, metabolic as well as infective pathologies. Ama in a particular character triggers autoimmune disorders.

### **Classification of ama**

#### **I. Based on the quality:**

1. Dormant ama in tissue (leena): This causes silent and chronic diseases like cardiovascular diseases, cancer etc.
2. Sudden manifestation of symptoms followed by dormant state (leena – aleena): Episodic illness like bronchial asthma, rheumatoid arthritis etc. Sudden flare-ups and remissions are the characteristic features of this condition.
3. Static or immobile state, ama cannot be removed from body in this state (achala)
4. Freely moveable state, ama can be removed easily from the body (chala)

Ama when becomes deep seated (leena) in the tissue (dhatu) it triggers auto immune disorders, because body is not able to distinguish between ama and the tissue (dhatu).

## II. Based on quantity:

1. Less quantity (alpa)
2. Medium quantity (madhya)
3. Large quantity (bahu)

## III. Based on location:

1. The alimentary canal (koshtha)
2. Peripheral tissues (shakha)
3. Vital points (marma)

## IV. Based on state of dosha:

1. Undigested (ama)
2. Partially digested (vidagdha)
3. Occluded (vishtabdha)

The pathology changes based on the type of ama. If there is infective pathology, it is mostly due to an undigested state. Inflammatory pathologies are due to a partially digested state. [A. Hr. Nidana Sthana 16/1]<sup>[1]</sup> The occluded state leads to a degenerative type of pathology. For the treatment, separation of ama from tissue (dhatu) is very much essential, otherwise, it will cause complications. [A. Hr. Sutra Sthana 13/28]<sup>[1]</sup>

The treatment strategies change based on the location of ama and state of the dosha.

## Joint diseases in Ayurveda

A careful study of the classical Ayurvedic texts reveals that joint and connective tissue disorders can be broadly divided into three categories viz 'Amavata', 'Vatarakta' and 'Sandhivata'. These disease entities are quite comprehensive as they represent the possible pathologies that can arise in the joints due to the derangement of kapha, pitta, and vata dosha respectively. There are other ailments of the joints to be considered like inflammatory swelling of the knee joint (kroshtukashirsha). An accurate fixed modern correlation is not at all possible in any of these conditions. 'Amavata' is correlated to rheumatoid arthritis, but the concept is much broader than that. It includes many other conditions like rheumatic fever, ankylosing spondylitis etc. In ankylosing spondylitis, when there is axial spondyloarthropathy the symptoms resemble amavata.[M.Ni. Amavatanidana/5] <sup>[2]</sup> There will be stiffness in the entire spine. It's an assortment of conditions put together because it mainly affects musculoskeletal diseases or due to the involvement of autoimmune pathologies. Rather than a fixed correlation, it is always

beneficial to keep a separate diagnosis system. A diagnosis in conventional medical system is based on the available criteria. Parallely, Ayurvedic diagnosis of the same condition can be done based on classical clinical features.

### **Amavata**

This condition is predominantly seen in younger age where ama vitiation is happening very quickly. The body is in kapha dominant stage at this time.

It is caused by incompatible (virudha) foods. The signs of accumulation of ama are seen in the premonitory stage. The ama is accumulated in the bigger and smaller joints. The onset is sudden. It initially affects the big joints and later all joints in the body.

### **Vatarakta**

Vatarakta is usually seen in middle age. Pitta dosha dominance is observed in this age. It manifests due to vitiation of blood (rakta dhatu) and vata dosha at the same time. It affects not only the joints but also the skin and blood vessels. Typically the disease starts with the symmetrical involvement of smaller joints of both hands and feet. [Cha.Sa.Chikitsa Sthana 29/12] [A. Hr. Nidana Sthana 16/7]<sup>[1]</sup> Symmetrical arthritis is also a typical feature of rheumatoid arthritis described in conventional medicine.

In later stage, it spreads all over and systemic involvement is seen. [A. Hr. Nidana Sthana 16/7]<sup>[1]</sup> In advanced stages, severe deformity of the joints is seen. When the skin is involved, it shows cutaneous manifestations. When blood vessels are involved, it can cause damage to the blood vessels, extreme pain, and even death.

It is caused by incompatible foods (viruddha) and foods that cause burning sensation (vidahi). Its progression is slow. In the premonitory stage, relapse and exacerbations is present. This disease evolves in two phases.

A. Superficial (uttana): It involves skin and connective tissues.

B. Deep (gambhira): It involves joints and other deeper structures.

Eventhough it involves blood and vata dosha vitiation, it also involves ama as a key pathogenic factor. In the beginning, the treatment should focus on kapha-vata dominance. Vitiation of blood shall be addressed to prevent complications.

### **Classification**

Vatarakta is classified into 75 subtypes. There are 35 types of vata predominant vatarakta, 30 types of pitta predominance, and 10 types of kapha predominant vatarakta. [Chakrapani on Cha.Sa.Chikitsa Sthana 29/24-29] But in today's clinical practice, these sub-classifications are less focused. These subtypes might be 75 different stages of a single disease. Such stage-wise identification and its related treatments should be focused into clinical practice.

Some Ayurveda scholars correlate malignant conditions with vatarakta. Prolonged chronic inflammation is said to be the leading causative factor for malignancy. Thus it is logical that methotrexate, which is previously used for cancer management has become the mainstream drug for the treatment of rheumatoid arthritis.

### **Treatment principles**

Vatarakta is said to be a condition where the body is in a state of anger against its systems. [A. Hr. Chikitsa Sthana 22/18]<sup>[1]</sup> It is suggestive of autoimmune disorder. Just like anger cannot be appeased suddenly, the treatment of vatarakta also requires patience and an abundant amount of time. The flare-ups are unpredictable. After removing the ama and the body is purified the treatment should be continued for a long period to prevent a recurrence. This principle of treatment is very relevant in autoimmune diseases.

### **Sandhivata**

Sandhivata is a degenerative disease of the joints. It is caused by food which causes obstruction (vishtambhi). Usually, it is a gradually progressing disease primarily caused by wear and tear. Sudden onset due to injuries is also observed in some cases.

Pain associated with movement is the typical feature of this condition. Swelling of the affected joint is present. On palpation, the joint feels as if filled with air. It may affect any joint.

Osteoarthritis is prevalent in old-aged persons. Vata dosha dominance is seen in this age group. In sandhivata, the main focus is on Vata dosha. It is usually correlated to osteoarthritis. Apart from this, other degenerative joint conditions like lumbar and cervical spondylitis also come under the umbrella of sandhivata.

### **Ayurvedic perspective of rheumatoid arthritis**

It is difficult to find an exact match for rheumatoid arthritis (RA) in the classical texts of Ayurveda. In the early texts of Ayurveda like Charak Samhita, the major disease described that affects the joints is 'Vatarakta'. Vatarakta is described as an inflammatory disease affecting the joints. Some physicians correlate this condition with RA. 'Sandhivata' is very briefly mentioned in Charak Samhita. In the later texts like Madhava Nidhana, the first description regarding 'Amavata' is found. It may not be a new disease, but the term is introduced to give more granularity in understanding different clinically important conditions. It might be a condition where vitiation of blood (rakta) is not predominant. This condition is correlated with RA by some physicians.

Both correlations might be true. One condition is emphasizing ama more and the other condition emphasizes blood (rakta dhatu). A clinical study also reveals that when vitiation of blood is present, amavata treatment is not enough.<sup>[3]</sup> Therefore, personified treatment principles in Ayurveda include management of both ama as well as rakta dhatu.

**Table 1: Comparison of onset and clinical features of rheumatoid arthritis, amavata and vatarakta**

<b>Rheumatoid Arthritis</b>	<b>Amavata</b>	<b>Vatarakta</b>
Slow onset in most cases	Slow onset, not specified as a characteristic feature	Slow onset and progress is a typical characteristic similar to the spread of rat's poison
First affects fingers and toes of hand and feet	First affects the trika sandhi, which may be the joints in the lumbosacral region or the cervical region	Specifically mentioned that joints of hands and feet are affected first, especially fingers and toes
In some cases, general symptoms manifest before joints are affected	Typically, general symptoms manifest before joints are affected	Cutaneous manifestations may be seen in the prodromal stage. Typically starts with joint afflictions
Typically, joints are affected in a symmetrical fashion	Symmetrical involvement of joints not specified	Joints of both limbs affected at the same time
Morning stiffness of joints is a key symptom	Stiffness of the whole body is a characteristic sign, morning stiffness is not specified. It is also not specified whether the stiffness affects the joints	Stiffness is one of the signs. Morning stiffness not specified.
In the initial stages, there are remissions and flare ups	Remissions and flare-ups are not characteristic signs	Remissions and flare-ups are characteristic signs.

It is difficult to make a one-to-one correlation. More research works are required to establish specific correlations.



immune system. The basic causes that triggered immune response shall be found out and treated accordingly. It is a slow and stage-wise process. The various stages of ama, dosha, dhatu shall be considered. Ayurveda offers a treatment algorithm based on all these as below Image 1 and 2:

Immediate purificatory treatments are not advised. [A. Hr. Sutra Sthana 13/21]<sup>[1]</sup> It needs long-term treatment. Bringing the dosha back from the middle pathway (madhyama rogamarga) and the skin and six dhatus (shakha) to the gastrointestinal tract (koshtha) is the primary objective. This requires repeated medications for kindling (deepana) and promoting digestion (pachana). [A. Hr. Sutra Sthana 13/29]<sup>[1]</sup> The treatment is decided on the structures involved in the pathogenesis.

### **Clinical perspective of pathogenesis**

The Ayurvedic understanding of pathologies is different from conventional medical science. Pathogenesis of cervical spondylosis occurring in a person sitting continuously in an AC room and that in a person who is working on fields directly under the sun or by riding two-wheelers must be treated in different ways. Because the first condition is caused by the predominance of cold (shita) and dry (ruksha) properties and later is caused by hot (ushna) and dry (ruksha) properties. Even though the radiological investigations may appear similar in both conditions, but Ayurvedic treatment approach will be different. Some patients may get relief by using Karpasastyadi taila and some others with Pinda taila.

### **Clinical study on the comparative efficacy of Ayurveda and conventional treatments**

In a study, preliminary testing of Ayurvedic treatment algorithm has been done. In this study, it is found out that if an Ayurvedic approach to diagnosis is followed in parallel to modern medicine diagnosis effective Ayurvedic treatment can be done without compromising scientific design. The study involved three groups. One group received methotrexate and Ayurvedic placebo, other group received Ayurvedic treatments and methotrexate placebo. The third group received Ayurvedic treatment and methotrexate. Placebos for Ayurvedic dosage forms are introduced in this study. American College of Rheumatology (ACR) criteria was applied for the assessment of clinical efficacy in all groups. It was found that at 6 months, the Ayurveda group showed maximum respondents with 20% improvement as per ACR criteria. After 9 months, the Ayurveda group showed maximum respondents with 70% improvement in ACR criteria, outnumbering the respondents in the allopathic group. Long-term persistent kindling (deepana) and digestive (pachana) therapy, with focus on middle pathway of manifestation of diseases (madhyama rogamarga), slowly bringing the ama was having a larger benefit. This study is recommended as a blueprint for future studies on complementary and alternative medicine. This paper also received the Excellence in Integrative medicine research award in 2012.<sup>[3]</sup>

### Management based on underlying pathologies

Amavata may express in two conditions, with involvement of blood and without its involvement. If the patient has vitiation of blood (rakta dushti), classical amavata treatment further vitiates the blood, and worsens the condition. This is because the property of medicines used is hot (ushna) and dry (ruksha) which disturbs blood. If vitiation of blood is present the treatment must include blood soothing (rakta prasadana) and ama-reducing drugs. Due to this property, *Tinospora cordifolia* (guduchi) becomes the most important drug in its treatment. It is one of the rare herb which reduces vata and kapha and soothes blood (rakta prasadana) simultaneously. So it can be used in all stages. But *Zingiber officinale* (sunti) and *Pluchea lanceolata* (rasna) is used in ama predominant condition only. If the predominance of blood is more, oils like *Yashtimadhu taila*, *Balaguduchyadi taila* etc are used. In a study, it is found that treatment given according to the combined ama and blood (rakta) concept yields better results. The 70% improvement is recorded which is equivalent to methotrexate. In the study, some patients had given only *Amrutotaram kashaya* which is more for ama. The other patients were given *Balaguduchyadi kashaya*, *Kokilakshaka kashaya* etc. focusing more on blood vitiation (rakta dushti).<sup>[3]</sup>

### Conclusion

Regarding the diagnosis of these rheumatological conditions, modern science diagnosis is also complex and based on assessment of multiple parameters. Specific conditions have been pinpointed by modern medicine through biological or molecular mechanisms. However, from the Ayurvedic perspective, involvement of middle pathway of diseases (madhyama rogamarga), ama and its classification, and the three broad pathologies viz amavata, vatarakta and sandhivata accommodate all these pathologies.

Correlating Ayurvedic disease with a biomedical condition or biomedical disease with an Ayurvedic condition won't yield desired results because both these approaches have limitations. It is better to diagnose the disease condition separately in each system and later can search for any natural correlations on case to case basis. The retrospective classification may yield more relevant correlations. Disease descriptions in classical Ayurvedic texts reveal that each disease entity described represents a cluster of diseases that stem from a common underlying pathology. Biomedical disease descriptions represent very specific pathological manifestations. From this point of view, a particular disease described in Ayurveda would correlate with a cluster of diseases in biomedicine. So instead of fixing one-to-one correlation, if we look at stages of disease and doshas and treat accordingly the results will be better. In Amavata more attention should be given to kapha dosha, in vatarakta more attention should be given to pitta dosha, and in sandhivata to vata dosha.

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# Kidney diseases

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[https://www.carakasamhitaonline.com/index.php?title=Kidney diseases](https://www.carakasamhitaonline.com/index.php?title=Kidney_diseases)

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## Incidence of chronic kidney disease

Chronic kidney disease (C.K.D.) is a big challenge to the medical fraternity. About 9.1 % of world population is suffering from CKD.<sup>[1]</sup> Kidney disorders are the 12th leading cause of death worldwide with an annual death rate of 15.7 per 100000. In India, it is the 8th leading cause of death.<sup>[2]</sup> Currently, over 2 million people worldwide need dialysis or a kidney transplant for life. However, this number represents only 10% of the people who need these kinds of treatments to save their life. The majority of these patients belong to countries like United States, Japan, Germany, Brazil and Italy. In about 100 developing countries making 50% of world population, only 20% of patients receive these facilities.<sup>[3]</sup> So, the accessibility and affordability of advanced conventional treatment facilities like dialysis and kidney transplantation are very poor especially in developing countries. Therefore, the need of systems like Ayurveda is high on rise.

Ayurveda treatment can provide relief in a patient of chronic kidney disease in either of the following three ways :

- Reduction in the frequency of dialysis (in patients who are already undergoing dialysis)
- Postponement of need of renal replacement therapy (RRT), if the patient has not yet started dialysis or not yet planned for kidney transplant
- Normal comfortable life without RRT (in less severe cases)

## Ayurvedic perspective of chronic kidney disease

Chronic kidney disease (CKD) can be termed as “Jeerna or Pravruddha Vrikkadosha” in Sanskrit language. A disease condition with similar clinical features is described in Charak Samhita in Chhardi Chikitsa. [Cha. Sa. Chikitsa Sthana 20/16-17] It is a fatal condition. When the morbid vata occludes the channels carrying faeces, sweat, urine and body fluids and moves upwards, then the morbid matter from the koshta (gastrointestinal tract), gets incited to cause vomiting. It has the following characteristics:

1. Vomitus having color and odor of the faeces and urine;
2. Persistent thirst, dyspnoea hiccup and pain
3. Vomiting of foul smelling or dushta (putrid material); and
4. Bouts of vomiting ejected with great force.

Such a patient succumbs to death quickly. This shows a clear picture of a uremic patient with vomiting, uremic smell, thirst, breathlessness and hiccup. Management of this condition is not described which shows that in that period management of this condition was not available.

## Concepts of kidney and formation of urine

There are no direct references in Ayurvedic classics regarding the role of kidneys in the process of formation of urine. The word pakwashaya (colon) is mentioned as the site of formation of urine. It should not be considered in anatomical or physiological aspects of conventional medicine. Ayurvedic texts emphasize more on therapeutic relevance of the organs. The description may not always match with modern views. This concept has a very good therapeutic utility. The drugs and therapies having action on colon (pakwashaya) are successfully used for promoting proper formation of urine from its original site (kidney).

Word vrikka is found in Rigveda but not as an organ but as a medicinal plant. According to Bhashya the word vrikka means ‘averter of diseases’. Thus, in similar manner we may understand the vrikka as organ also. [Rigveda 1/187/10]

Similarly, the word “vrukka” used for denoting kidneys indicate that it has the capacity of healing itself. This self-healing power of vrukka (kidney) shall be explored and promoted by Ayurvedic treatment.

## Chronic renal failure

By definition, chronic renal failure (C.R.F.) is an irreversible deterioration in the renal function, classically develops over a period of years with a decline in glomerular filtration rate (GFR) below 60 ml/min/1.73 m<sup>2</sup> of body surface area for more than 3 months. However, clinically, the deterioration in renal function is found to be reversible to some

extent. It is certainly not a completely curable disease. When the GFR becomes  $<15$  ml/min/1.73 m<sup>2</sup> of body surface area, it is known as end stage renal disease (ESRD).

### **Pathogenesis of ESRD**

When any pathological changes occur in kidney, initially there is hyperfiltration leading to minor damages to the kidney. Because of this hyperfiltration, there is over burden to the remaining healthy nephrons to compensate it. This causes further damage in the healthy nephrons and progressive dysfunction ultimately leading to ESRD. Initially it will be evidenced by biochemical abnormalities, but gradually it leads to excretory, metabolic and endocrinal deficiencies related to the functions of kidney.

### **Etiological factors**

**Congenital causes:** Polycystic kidney, congenital hypoplasia

**Vascular causes:** Arteriosclerosis, renal artery stenosis, diabetic nephropathy, haemolytic uremic syndrome, vasculitis

**Glomerular disease:** Various types of glomerulonephritis (primary glomerular disease such as focal segmental glomerulosclerosis and IgA nephropathy)

**Intestinal diseases:** Chronic pyelonephritis, vesico-ureteric reflux, tuberculosis, calcinosis, analgesic nephropathy

**Obstructive uropathy:** Calculus, prostatic hypertrophy, pelvic tumours

**Auto-immune diseases:** Lupus, systemic sclerosis

In children: Congenital anomalies of kidney and urinary tract(49.1%), steroid resistant nephrotic syndrome(10.4%), chronic glomerulonephritis, e.g., lupus nephritis, Alport syndrome (8.1%), renal ciliopathies(5.3%).<sup>[4]</sup>

Some of the less common causes are thrombotic microangiopathies (especially, atypical haemolytic uraemic syndrome), nephrolithiasis/nephrocalcinosis, infectious and interstitial diseases.

### **Etiopathogenesis as per Ayurveda**

The etiological factors can be understood and categorized in the following manner.

- Genetic abnormalities (bija dosha)
- Suppression of natural urges, especially those related to the action of apanavayu (type of vata dosha responsible for excretory functions).
- Injury to vital organ (marmabhighata): Especially on three major vital organs (shira, hrudaya, basti)
- Faulty dietary habits (vishamashana)

- Diseases of urinary system (mutravahasrotas) e.g. mutrakricchra, mutraghata, ashmari, arbuda, granthi, prameha (especially madhumeha)
- Auto immune factors (balabhramsha)
- Accumulation of intermediate products produced during digestion, metabolism and transformation (amasanchiti)
- Chronic debilitating illnesses (jeernajwara)
- Unknown causes (daiva)

### **Dosha- dhatu involvement in pathogenesis**

In this condition, there is involvement of all the three dosha with predominance of vata and kapha dosha. The bodily components that get vitiated in initial stage are urine (mutra), body fluids (rasa, udaka, sweda, rakta) and blood vessels (sira). In later stages all the tissue components (dhatu and upadhatu) may get involved. Clinical conditions related to tendons (snayu), muscles tissue (mamsa), bones (asthi) and reproductive components (shukra) are often observed related to kidney diseases.

### **Srotas**

In initial stage, channels(srotas) like urinary (mutravaha), body water (udakavaha), sweat (swedavaha), body fluids (rasavaha) and blood (raktavahasrotas) are involved. But gradually it advances into a multi system disorder.

The pathological changes happening in the channels of urine(mutravahasrotas) in patients of chronic kidney diseases can be interpreted in terms of guna (inherent qualities). Excessive increase in characteristics like roughness (kharatwa), heaviness (gaurava), hardness (kathinya) and dryness (rauکشya) leads to the structural damages in advanced stage.

The functions of agni are deteriorated at every level. Accumulation of intermediate products formed during digestion and metabolism (ama) is seen in every stage. The origin of all these pathological changes is colon (pakwashaya). The disease with initial involvement of middle pathway (madhyama rogamarga) progress to all the three disease pathways (rogamarga). This leads to poor prognosis.

### **Principles of Management**

- First and most important step is avoiding causative factors (nidanaparivarjana) with treatment of underlying diseases.
- Repair of the damage at the site of origin for disease i.e., kidneys
- Establishing the normal state of channels of urine, body fluids and sweat by supporting the excretory functions and maintenance of fluid and electrolyte balance.

- Nourishment of the supportive tissues (dhatu poshana) especially rasa, rakta, mamsa and asthi dhatu. This includes correction of anaemia, myopathy, neuropathy, osteodystrophy etc.
- Management of associated problems such as cardiovascular disorders, hypertension etc.
- Psychotherapy (sattvavajayachikitsa) and spiritual therapy (daivavyapashrayachikitsa)

### **I. Avoiding the cause (nidanaparivarjana)**

With the advice for avoiding the causative factors like dietary, life style modifications etc. the underlying disease conditions should be addressed first.

In cases of polycystic kidneys, manage the condition with suitable medicines like Kanchanara guggulu, Varunadi kwatha etc. For example, in case of hypertension, use of antihypertensive drugs to control blood pressure and overload on kidneys. In case of diabetic nephropathy, treatment for diabetes should be done first.

### **II. Repairing the damage at kidneys (origin of disease)**

Herbs having rasayana (rejuvenating) activities on urinary system (mutravahasrotas) should be used. Crataeva religeosa (varuna), Boerhavia diffusa (punarnava), Tribulus terrestris (gokshura), and Phyllanthus niruri (bhummyamalaki) show potent rejuvenating activities on urinary system. The compound preparation called “Chyavanaprasha”, other preparations like Jivitapradavati [Bheshaj Samhita],<sup>[5]</sup> shilajatwadivati etc. with rasayana drugs like black bitumen (shilajatu) and Commiphora wightii (guggulu) are found very effective for this purpose.

### **III. Establishing the normal state of srotas (mutravaha, udakavaha and swedavaha)**

In order to support the excretory functions and maintenance of fluid and electrolyte balance, the therapeutic procedure called ‘basti’ is found highly effective. The decoction enema (niruha basti) with punarnavadi kwatha, and unctuous enema (anuvasana basti) with gokshuradi taila, the drug Boerhavia diffusa (punarnava) in a palatable and convenient form 3-5 g twice a day is advisable.

Fluid intake should be regulated according to urine output. Excessive fluid intake is not advisable as it causes extra burden to the nephrons. However dehydration by restriction of fluids shall be prevented.

The status of important electrolytes like sodium and potassium should be considered. In cases of hypernatremia and associated cardiac failure, salt should be restricted. Rock salt (saindhava lavana) is advisable if needed. In cases of hyperkalaemia, intake of fruits and vegetables should be restricted. In case of hypokalaemia, intake of fruits and coconut water is useful.

### **IV. Nourishment of dhatu (body constituents)**

For correction of anaemia, Chyavanaprasha or any iron containing preparations are effective. Role of erythropoietin shall be considered here. If only the excretory function of kidney is impaired and endocrinal functions are proper, then erythropoietin supplementation is not needed. In case of deficiency of erythropoietin only, it should be supplemented. Fruits of prickly pear, beetroot are natural supplements having similar action to erythropoietin. These are used for promoting blood tissue (rakta dhatu).

For managing myopathy and neuropathy, a very effective therapeutic measure is massage (abhyanga) with medicated oils. This pacifies aggravated vata dosha. For osteodystrophy, Shankhabhasma, compounds of mukta (pearl) and pravala (coral) are used. They are good natural source of calcium and also help in managing hyperacidity. Mukta is an antidepressant too.

### **V. Management of associated conditions**

In cases of hypertension, Triphala guggulu 1gm three times a day along with powder of Terminalia arjuna (3g) is effective. The powder of Rauwolfia serpentina (sarpagandha) 500mg-1gm can also be given to control hypertension. Symptomatic treatments are given in cases of nausea, vomiting, hiccup etc.

### **VI. Psychotherapy**

Proper counselling of the patients, giving positive outlook and assurance comes under sattvavajaya chikitsa. This has a great role in such conditions.

### **Treatment protocol**

#### **Purification therapies (shodhana chikitsa)**

In mild cases (creatinine <3mg%), mild therapeutic purgation (virechana) is advised after oleation (snehana) with gokshuradi ghrita. Then medicated enema (basti) with punarnavadi kwatha and gokshuradi taila is given.

If auto immune factors are involved, use of Piper longum (pippali) in the specific ascending and descending doses (vardhamana pippali) is recommended before virechana procedure.

#### **Pacification therapies (shamana chikitsa)**

Following medications are found effective in the management of kidney diseases.

- Gokshuradi guggulu-1g, three times a day, after food with warm water
- Varunadi kwatha - 40ml, two times a day
- Rasayana Churna [a combination of Tribulus terrestris (gokshura), Embilica officinalis (amalaka) and Tinospora cordifolia (guduchi)], 3g, three times a day with water
- Shvadamshttra Rasayana (powder of Tribulus terrestris (gokshura) triturated 7 times in the decoction of the same drug) 1g, three times a day

- Powder of Phyllanthus niruri (bhumyamalaki)- 3g, three times a day, after food, with water.
- Shilajatuadi vati-750mg, three times with water.

### **Dietary protocol**

Breakfast: Chyavanaprashaavaleha 20g with 300ml boiled cow's milk.

Lunch: Boiled green gram, green gram soup, boiled vegetables, rice. Fresh and mild spices are added.

Supper: Green gram soup, beans soup, rice, boiled vegetables with mild to moderate spices.

Others: Fruits (only papaya, grapes, sweet apple, figs and dates), pop rice.

An extra 100 ml of boiled milk (cow's) is also advisable during day time, if the patient feels hungry.

### **Food items to be avoided:**

- All other flour items like wheat, millet, corn etc.
- Bakery items, junk food, fermented items
- All oils except sesame oil
- Salts, sour substances
- Chilies, deep fried items
- Milk products except cow's milk and ghee are to be avoided.

### **Lifestyle factors**

Excessive physical and mental stress, day time sleep and night vigil are also restricted.

Current research

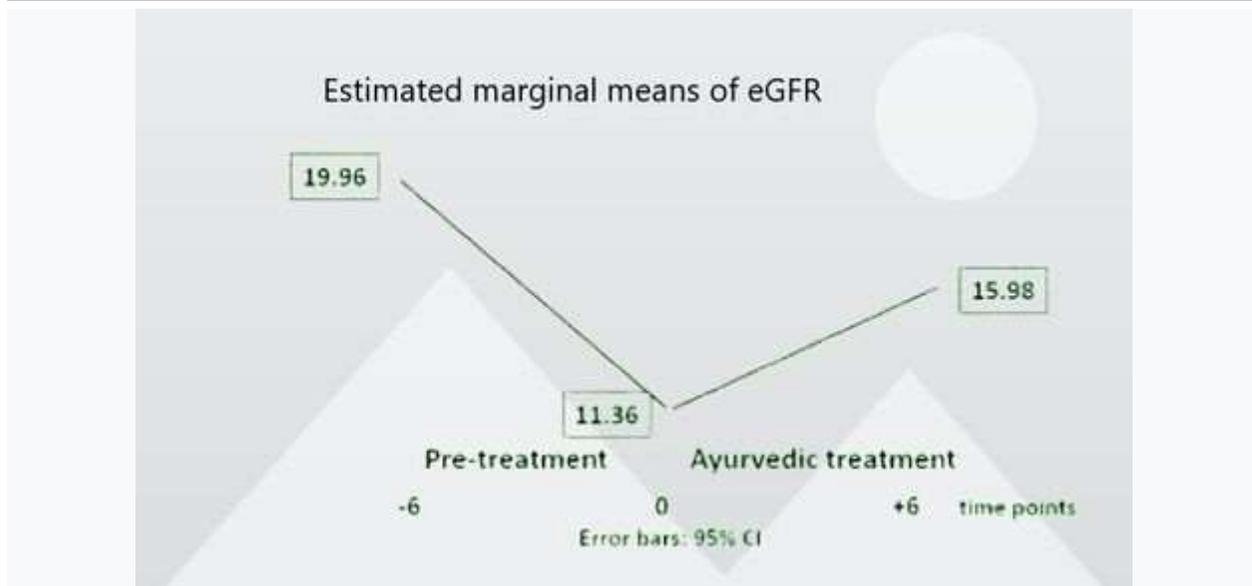


Image 1: Estimated marginal means of eGFR

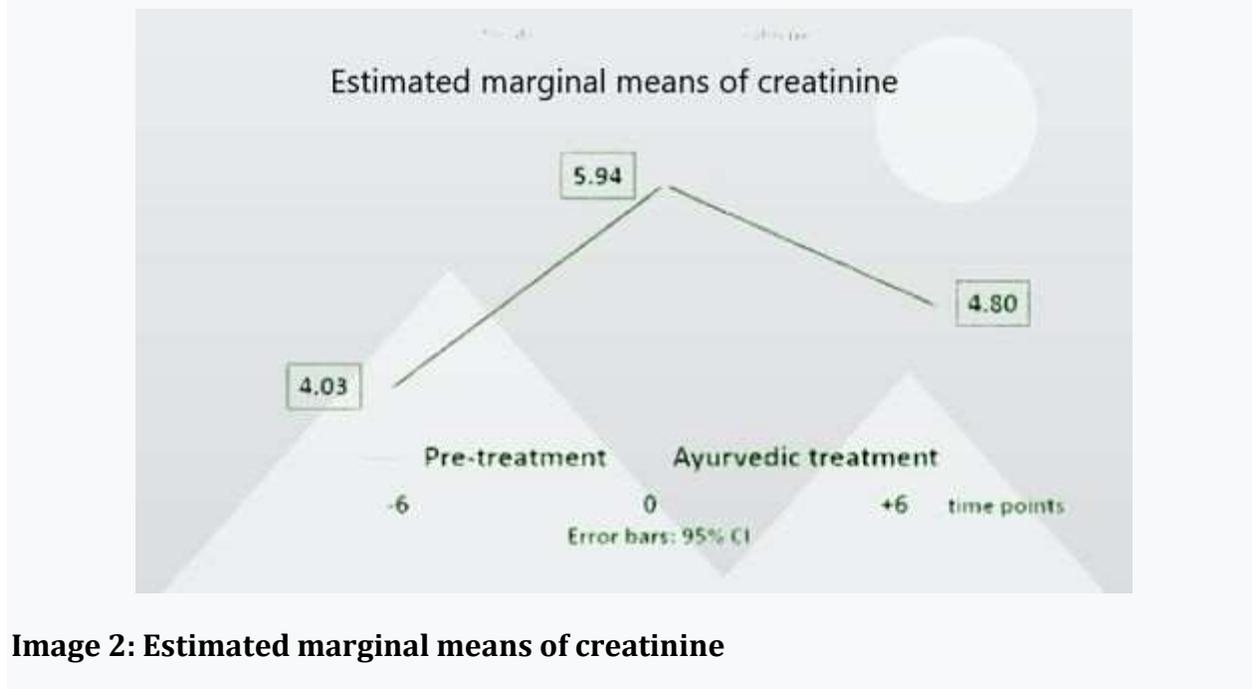
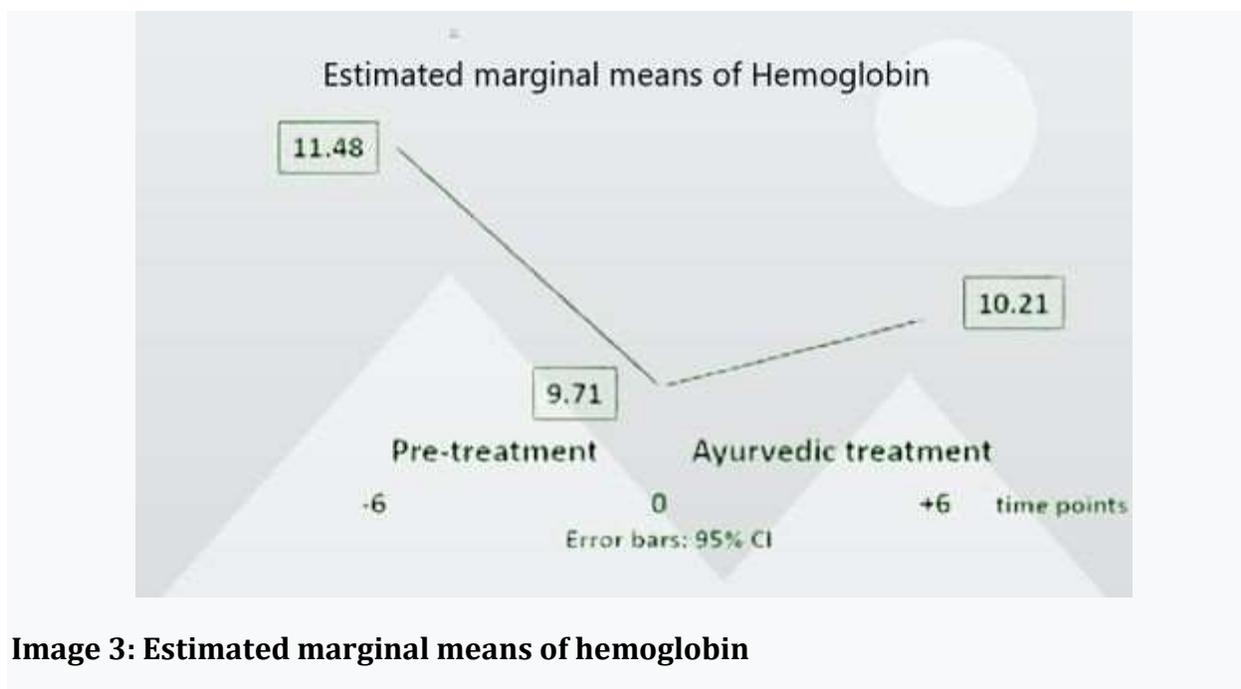


Image 2: Estimated marginal means of creatinine



**Image 3: Estimated marginal means of hemoglobin**

A clinical study of 100 patients of chronic renal failure (other than diabetic nephropathy) to study effect of ayurveda therapy was conducted. Decoction enema (niruha basti) with punarnavadi kwatha daily and oral administration of gokshuradi guggulu, rasayana churna and varunadi kwatha as per the protocol were prescribed for a period of one month. In this study, statistically significant results were obtained in levels of serum creatinine, blood urea and albumin in urine along with considerable relief in signs and symptoms.<sup>[6]</sup>

Another study was conducted in 130 patients of diabetic nephropathy treated with oral administration of gokshuradi guggulu, bhumyamalaki, vasa and shilajatvadivati for 2 months. The data showed highly significant reduction in serum creatinine, blood urea and urinary excretion of albumin.<sup>[7]</sup>

In a study, sixty-four non-dialysis CRF patients with stage IV or V at base line and having record of laboratory investigations of the preceding 6 months were studied. The treatment protocol included enemas (niruha-basti) containing 40 ml punarnavadi kwatha daily one hour before lunch for one month. Oral medications like gokshuradi guggulu, varunadi kwatha, rasayana churna, bhumyamalaki, shilajatwadivati, and chyavanaprasha were given for six months. Renal function tests (RFTs) were evaluated at various time points, i.e 6 months before baseline (TP -6), at baseline (TP 0), and after completion of 6 months of treatment (TP +6). After six months of Ayurvedic treatment, statistically and clinically significant improvements of eGFR, serum creatinine, blood urea, and hemoglobin and a significant shift to better CRF stages were observed in this study.<sup>[8]</sup>

### Possible modes of action

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- Mental positivity
- Deceleration of disease process
- Reversal of pathology in mild affected units
- Adaptation
- Compensation by intact nephrons/by other organs

Clinical Studies on effect of Ayurvedic treatment on dialysis dependent patients are under progress.

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# Panchakarma in modern lifestyle

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This article is based on a lecture delivered by Prof. Dr. Anup Thakar, Director I.T.R.A Jamnagar, Gujarat, India. in Prof. M. S. Baghel Memorial Lecture Series on January 09, 2022.

## **Modern lifestyle & diseases**

It is estimated that approximately 70-80% of present-day population indulges in harmful lifestyle factors like alcohol, smoking, unhealthy diet, physical inactivity etc. Among these factors, the most hazardous factor is mental stress with a higher impact on health as compared to others. These result in the development of chronic and non-communicable diseases like heart diseases, stroke, diabetes, obesity, metabolic syndrome, chronic obstructive pulmonary disease, malignancy etc. According to United Nations, by 2030, the proportion of total global deaths due to chronic diseases is expected to increase by 70 percent and the global burden of disease to 56 percent. If these diseases can be managed just by modifying lifestyle and following Panchakarma, it will create a huge impact on the society. Proper life style, good diet and Panchakarma can change the scenario leading to healthy world with minimum global burden of diseases.

## **Health and health determinants**

Holistic approach encompasses all elements required for healthy living. Holistic approach doesn't essentially mean following herbal and traditional systems of medicine. The 'individual' undergoing the therapy is more important and most suitable 'therapy' to a person's health should be provided. The integrative approach should be adopted and implemented with such individualistic focus. The health promotion, specific protection by restoration and rehabilitation through panchakarma and healthy lifestyle is need of the hour.

## Blueprint for preservation of health

Following the seasonal and daily regimes as mentioned in Ayurveda is the blueprint of health preservation.

**Daily regimes (dinacharya):** This includes waking up early in the morning; passing urge of urination and defecation; brushing teeth; application of collyrium in the eye; nasal instillation of oil (nasya); oil pulling in the mouth (gandusha); inhalation of herbal smoke (dhumapana); chewing of oral fresheners with betel leaf (tambula); oil application and body massage (abhyanga); physical exercise (vyayama); massage with powdered drugs; bath, and indulge in professional activities by observing good social conduct.

**Seasonal regimes (ritucharya):** This includes specific treatments as per season, viz. therapeutic emesis (vamana) in spring (vasanta); therapeutic purgation (virechana) during autumn (sharad) and therapeutic enema (basti) during monsoon season (varsha). Suitable diet and lifestyle changes are advised according to changes in seasonal conditions.

During the ongoing COVID-19 crisis, nasal instillation of oil (nasya) and oil pulling (gandusha) showed a greater role in protection of health. When the nasal pathway is smeared with oil, there forms an oil coating in nasal mucosa which traps the foreign body including bacteria and viruses and thus prevents its entry into vital structures. Oil pulling therapy also works in the same way. Oil application in nostrils can be done for fifteen times in a day. [A. Hr. Sutra Sthana 20/28-29]<sup>[1]</sup>

Chewing betel leaves (tambula) especially after food intake shows many health benefits. Betel leaf also has anti-cancerous effect. One who follows the daily and seasonal regimens properly will have a lesser chance of getting disease.

## Pathogenesis of lifestyle disorders & utility of panchakarma – Ayurvedic view

If a person continuously indulges in high calorie food, irregular or improper diet, lack of physical activity, disturbed sleep and stress, it results in accumulation of dosha. This also alters the status of related body tissues like blood (rakta), body fluids (rasa), fat (meda dhatu) etc. High calorie food has a natural affinity towards fat tissue (meda dhatu). So continuous intake of high calorie food alters the status of fat tissue (meda dhatu).

If the person undergoes seasonal purification procedures like therapeutic emesis etc., the therapy breaks the chain of pathogenesis of disease. This cleanses the body by expelling out increased dosha and brings back normalcy of tissues.

Panchakarma is a unique treatment modality of Ayurveda with five major therapeutic procedures for internal purification of body with allied procedures. Purification procedures of panchakarma allow the biological system to return to homeostasis and rejuvenate rapidly.

## Panchakarma

'Panchakarma' comprises of five therapeutic procedures as follows:

1. Therapeutic emesis (vamana): to eliminate aggravated kapha dosha through mouth.
2. Therapeutic purgation (virechana): to eliminate aggravated pitta dosha through anal route.
3. Therapeutic enema (basti): to eliminate aggravated vata dosha by administering herbal decoction or oil/medicated ghee through anal route.
4. Therapeutic nasal administration (nasya): to eliminate doshas above clavicle region (urdhwajatru) by administering medication through nose.
5. Therapeutic bloodletting (raktamokshana): to eliminate aggravated blood (rakta) based morbidities.

The other allied panchakarma therapies are oil massage (abhyanga), sweat inducing therapies or fomentation (swedana), liquid dripping therapy over forehead (shirodhara), powder massage therapy (udwartana), oil pulling therapy (gandoosha) etc.

### Global prospects of panchakarma in public health

Panchakarma procedures are highly effective natural bio cleansing procedures. It can lead to a paradigm shift of health care from curative to preventive and promotive therapies.

### Benefits of bio cleansing (shodhana)

- Increases metabolic fire (agni): Proper bio cleansing (shodhana) followed by proper diet plan (samsarjana) improves the digestive and metabolic processes (agni) or correct the metabolism. When metabolism is intact, the natural immunity will be at its optimum.
- Improves intelligence and strengthens sense organs
- Attain stability of body tissues: Biocleansing clears the accumulated dosha and thus prevents further aggravation of disease.
- Increases longevity: By acquiring the above said benefits the life expectancy will also increase. Purification therapies followed by rejuvenating therapy contribute antioxidant action and free radical scavenging activity. This minimizes free radical induced damage which is a key cause of aging.

### Role of Panchakarma

- Preventive: Prevents non communicable diseases/life style diseases through seasonal bio cleansing.

- Curative: Curative approach in major non communicable diseases and communicable diseases.
- Restorative: Restoration of health is achieved through rejuvenating (rasayana) therapy. The benefits of rasayana therapy can be achieved only after proper bio cleansing through Panchakarma.

### **Therapeutic emesis (vamana)**

Vamana is done in spring season approximately in the month of March and April for the elimination of vitiated kapha dosha. It helps in managing conditions like bronchial asthma<sup>[2]</sup>, allergic bronchitis, rhinitis, sinusitis, migraine, hyperacidity, indigestion, anorexia, obesity, overweight, dyslipidemia, diabetes mellitus, acne vulgaris, psoriasis, eczema, urticaria etc.

In a study, it is reported that vamana increases glucocorticoid, ACTH and catecholamine. Vamana increases heart rate and results in vasodilatation. It prevents auto immune and inflammatory conditions. Anti-streptolysin (ASLO) titer is reported to be reduced by vamana. This suggests vamana is a definite answer for auto-immune disorders.<sup>[3]</sup>

In another study, four samples of vamana at different time intervals were collected to find the impact of lipid peroxidation. Lipid peroxidation refers to the oxidative degradation of lipids. It is the process in which free radicals steal electrons from the lipids in cell membrane, resulting in cell damage. This process proceeds by free radical chain reaction mechanism. Lipid peroxidation is the causative factor for atherosclerosis and it aggravates the initial tissue injury caused by ischemic or traumatic brain damage. Catalase is a protective enzyme which prevents the accumulation of toxic levels of hydrogen peroxide formed as a by-product of metabolic process.

In this study, it is found that catalase activity increases as vamana goes on. In the first sample it was 36.12 and in the fourth sample it was 50.53. At the same time, the lipid peroxidase reaction decreases from 7.82 in first sample to 2.25 in fourth sample.

### **Therapeutic purgation (virechana)**

Virechana is indicated in autumn (sharad) season (mid September to mid November approximately). It eliminates excessive vitiated dosha in general and pitta dosha in particular from the body through the anal route. Purgation simply represents cleansing of intestine, but virechana is cleansing of the whole body.

Studies show that virechana can lower hepatic glucose production and helps to prevent elevated blood sugar level.<sup>[4]</sup>

The concept of microbiome is also considered here. The whole environment of intestine changes after virechana. This changes the microbiome flora too. Diet restrictions

(samsarjana) after virechana, in which the person is subjected to a controlled exposure to carbohydrate diet primarily followed by protein and fat, provides a new microbiome environment in the gut.

### Therapeutic enema (basti)

The procedure in which medicines are administered through rectal route is termed as 'basti'. Based on the ingredients it is of two types. Basti with decoction (niruhabasti) and with medicated oils/ghee (anuvasanabasti).

**Niruha basti:** It facilitates peristaltic action and enhances the absorption of nutrients from the caecum and ascending colon. Mustadi yapanabasti (a type of niruha basti) is seen to reduce the TB specific IgG and IgM significantly. This clearly denotes the immune modulation effect of basti therapy.<sup>[5]</sup>

**Anuvasana basti:** It influences the immune function of the body by production of T helper cells, leucocytes, cytokines and modulation of lymph mechanism.

Enteric nervous system of GIT has connection with CNS. ENS works in synergy with CNS. Stimulation of ENS by chemo or mechanic receptors in turn stimulates the concerned CNS. This might be a reason behind efficacy of basti in neurological conditions like paralysis. The role of gut microbiome should also be considered here. Through basti, there might be alteration of gut microbiome which secretes enzyme that might stimulate the CNS.<sup>[6]</sup>

### Genomic study on the effect of virechana and basti

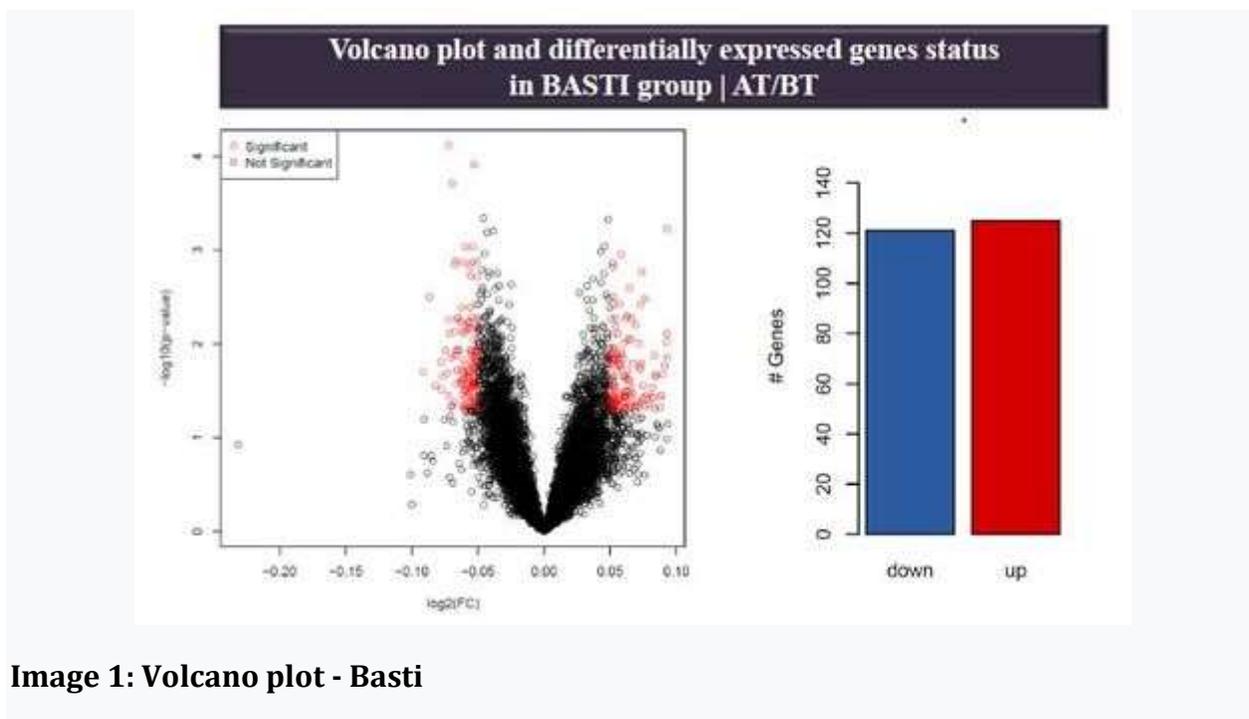
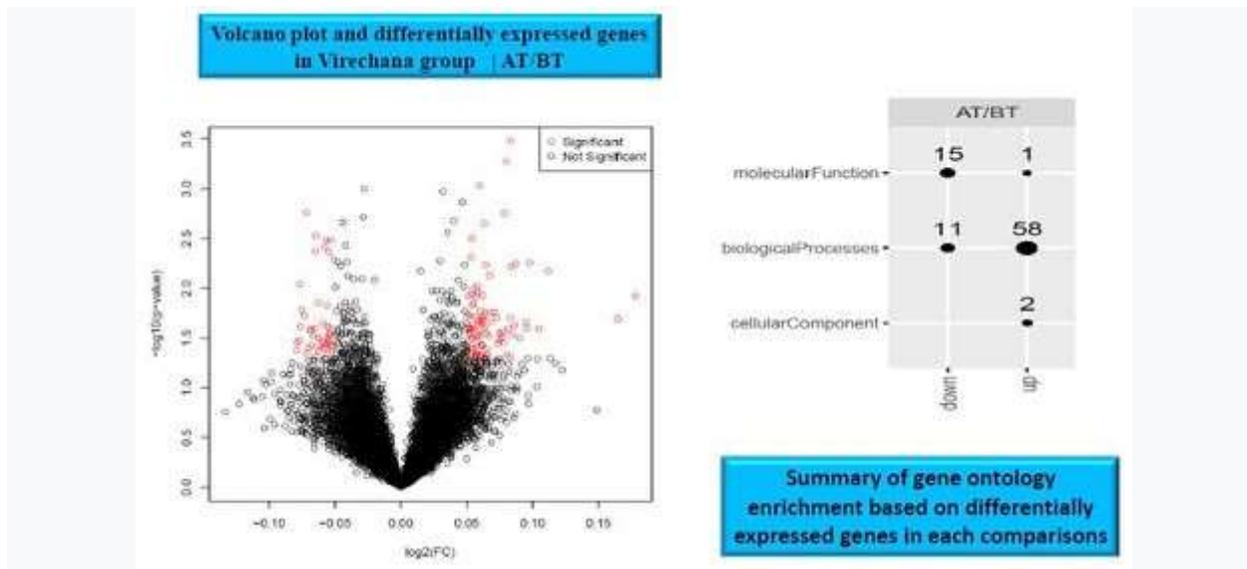


Image 1: Volcano plot - Basti



**Image 2: Volcano plot - Virechana**

A study was conducted at I.P.G.T.R.A., Jamnagar in collaboration with Institute of genomic and integrated biology (IGIB) under CSIR, New Delhi. Total 60 patients were selected randomly for basti and virechana. Ten patients from each group were selected for gene expression analysis. Serum samples were taken before and after the respective treatments. Collected samples were sent to Ayurgenomics lab, IGIB-CSIR, New Delhi.

**Procedure:** Procedure carried out as per instructions in Illumine kit manual. RNA samples placed on a bead chip array placed on an iscan reader. The iscan reader uses a laser to excite the fluor of the single base extension product on the beads of the bead chip sections. Light emission from these fluors recorded in high resolution images of the bead chip sections. Data from these images were analyzed to determine SNP genotypes using Illumina's genome studio gene expression module. The volcano plot shows that some genes (red dots) are differently expressed after basti [image 1] and virechana [image 2]. Around 120 genes were down regulated and around 125 genes were up regulated. By virechana also around 26 genes were down regulated and 61 genes were up regulated.<sup>[7]</sup>

**Upregulated pathways after virechana:**

- NF kappa B signaling pathway: Compensates the damage caused by reactive oxygen species and inflammation resulting after ischemic attack.
- NOD like receptor signaling pathway: Prevention of added infections by helping in formation of another defense line.
- Cytosol DNA sensing pathway enrichment: Triggers robust immune responses including inflammasome activation.
- Antigen processing and presentation: Promotion of immune responses.

- Hematopoietic stem cell lineage: Neuroprotection and reduction in post ischemic inflammation.

#### **Downregulated pathways after virechana:**

- Jak stat signaling pathway: Restoration of the calcium ions and tight junctions.
- Reinstating the brain homeostasis by blood brain barrier patch up.
- Map kinase signaling pathway: Prevention of further development of pathological changes in the brain tissue and prevent further damage due to stroke.
- Cellular senescence: Maintenance of integrity of blood brain barrier.
- Glycosphingolipid biosynthesis-ganglio series: Ameliorates atherosclerosis, causes a profound reduction of plasma cholesterol.

#### **Upregulated pathways after basti:**

- Antigen processing and presentation: Upliftment of the immune system for the prevention of any infection immediately after stroke.
- Natural killer cell mediated cytotoxicity: Potent boost to immune system, preventing further infection or inflammation in the brain tissue.
- Retrograde endocannabinoid signaling: Neuroprotection of the brain tissue after the turmoil created by infarction or hemorrhage; reduction in overall stress and pain (due to anti-stress effects of cannabinoid receptors).

#### **Down regulated pathways after basti:**

- Regulation of Actin cytoskeleton: Detrimental effect on production of reactive oxygen species, thus protection from degenerative changes.
- Osteoclast differentiation: Reducing the level of osteoprotegerin (atherosclerosis and cardio vascular diseases).
- Hematopoietic cell lineage: Checking high inflammatory responses after stroke by lymphocyte and monocyte production.
- Jak-Stat signaling pathway: Activation of Jak Stat pathway leads to decreased cerebral recovery.
- Th1 and Th2 cell differentiation: Control of inflammation post stroke incidence.
- Apoptosis: Preventive application of basti in stroke management through regulation of apoptosis and preventing cell death.

These show that epigenetic results are also achieved through panchakarma. Through panchakarma gene correction is possible. Gene damage as a result of modern lifestyle can be corrected to some extent through panchakarma.

### Effects of other panchakarma procedures

**Oil massage (abhyanga):** Total 10 healthy men and 10 healthy women underwent 1 hour oil massage and was studied for effects on subjective stress experience. Significant reduction in subjective stress experience was observed. It decreases cortisol levels and anxiety. It increases the blood and lymphatic flow. Other associated symptoms like pain, sleeplessness and fatigue were reduced.<sup>[8]</sup>

**Foot massage (pada abhyanga):** This is also mentioned under daily routine that has to be followed. It is the quickest, simplest, most pleasurable and inexpensive way to make someone healthier and happier. In a study conducted to observe the effect of foot massage on eye strain, it is observed that regular practice of foot massage is very beneficial for reducing eye strain. Marked improvement was observed in Visual analogue scale to measure severity of symptoms and Likert scale for measuring frequency of symptoms.<sup>[9]</sup>

**Head massage with oil (shiroabhyanga):** A study in which head massage (shiroabhyanga) done with medicated oil (mahabhringrajtaila) is effective in reducing generalized body ache (angamarda), indigestion (apakti), vertigo (bhrama), yawning (jrimbha) and heaviness of head (shirogurava). It is also reported that duration of sleep was improved by 6-7 hours.<sup>[10]</sup>

In a study among 34 female office workers, scalp massage was applied twice a week for 10 weeks. Positive effects were observed on stress hormone, blood pressure and heart rate. Therefore, scalp massage can be used for stress control with no spatial or time limit.<sup>[11]</sup>

In another study among 30 anxiety neurosis patients, head massage with brahmi taila reports that mean gradation of anxiety reduced by 53.2 per cent which was highly significant.<sup>[12]</sup>

**Pouring of medicated oil over forehead (shirodhara):** Total 16 volunteers were subjected to this procedure. Mood and stress levels, electrocardiogram (ECG), electroencephalogram (EEG) and selected biochemical markers of stress were assessed. Significant improvement in mood scores and level of stress were observed. Significant decrease in respiratory rate, heart rate and reduction in diastolic blood pressure were noted. The relaxed alert state after shirodhara was co-related with an increase in alfa rhythm in EEG. It leads to a state of alert calmness similar to the relaxation response observed in meditation.<sup>[13]</sup>

**Nasal instillation of oil in less quantity (pratimarsha nasya):** In a study, it is reported that performing pratimarsha nasya as daily routine may be useful in controlling the progression as well as treatment of generalized anxiety disorder (GAD) if implemented in early stage. The study was conducted on 54 GAD patients. Nasya was performed daily for 3 months.<sup>[14]</sup>

**Powder massage (udwartana):** Powder massage is very effective in improving the texture and to open up the channels of skin. In a clinical study 10 obese persons were subjected to this therapy. Massage was done with Kola kulatthadi churna for 7 days. Significant reduction in body weight (mean weight reduced from 84.7 to 81.8) was reported.<sup>[15]</sup>

### Conclusion

Panchakarma, as a therapy, has proved to be effective in treating many pathological conditions. Performing panchakarma as a daily routine will help in prevention of diseases and preservation of health. Primordial primary prevention, curation and promotive aspects should be given emphasis through panchakarma. It should focus on comprehensive and inclusive health care of the community. An evidence based approach in Ayurveda through panchakarma will lead to global revolution in public health care.

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