



Ever since the evolution of life on this earth, living organisms have suffered from different types of ailments, many of which are caused by microorganisms. Similarly since the evolution of mankind on this planet, human beings have also suffered from various types of diseases caused by infections. The earliest available written literature 'VEDAS' are a proof to this.

The sage physicians of ayurved and physicians of all other civilizations have always strived to save human race from all types of illnesses and infections, according to available resources. There is always a struggle for existence among all living beings. The physicians of all ages have tried to invent and discover various types of medicines/methods to cure human being from different types of infections. On the other hand, infectious organisms try to devise different methods like cyst formation, secreting enzymes (penicillinase etc) or producing resistance to save themselves from the lethal effects of drugs administered to kill them. Thus it has always been an unending struggle between scientists and disease causing organisms to outsmart one another.

Ayurvedic physicians have put in great contribution in this field, ever since the times of three great treatises (Charak, Sushrut, Vagbhata). The earliest description and understanding that diseases are caused by some living organism (micro and macro) is available in Atharva Veda in the name of krimi and krimi roga. In the sabad kalpadruma, the term krimi is defined as (kramititi krimi) and Bharmeh Samprasarnaand. These two terms give the meaning of krimi as that which moves or roams about. Various terms such as raksas, pischacha, asura and kimidi are described as synonymous to krimi.

In Charaka Samhita we find a detailed description of 20 types of krimis in seven sections known as Saptakagana viz. Nidana (etiology) sthana (habitat) sansthana (clinical features) varna (color/description) name (nomenclature) Prabhava (specific effects) and chikitsa (treatment). In modern times also we find that medical microbiology is also described under the above

'Anti-Bacterial Drugs in Ayurveda'

mentioned headings.

Sushruta has described the involvement of Aagantuk nidana in the causation of Vishm-jvara which clarifies that he accepted the presence of some microorganisms to be the cause of Vismjvara. Acharya Gananath Sen has given the term Bhutabhishang with reference to vishamjavra thus accepting the role of microorganisms in Vishamjavara.

Acharya Sushruta has very clearly enunciated the mode of spread of some diseases like Kusth (skin disease) jvara (pyrexia) shosa (tuberculosis) netra abhishyand (conjunctivitis). Sushruta describes that these diseases spread among human beings, through sexual intercourse, touching of infected person's body, due to breath, eating together or sharing the bed, clothing, garlands, cosmetics etc.

Charak has dedicated a chapter on epidemic diseases named as Janpadodhvansa vimanam. The four etiological factors responsible are Jal, Vasu, Desh, and Kala. Epidemics occur when contamination and vitiation of these factors occur. Today we have water borne diseases, diseases due to environment pollution, epidemic disorders and seasonal diseases which are due to different infections, which can be correlated with Janpadhodhvansa vyadhis.

The above description very clearly proves that the great sage physicians had very clear knowledge of mode of spread of infectious diseases as also, how to prevent and combat these microorganisms. The terms Krimis, Bhutas, Grahas, Raksas and other agntuka nidans are for micro organisms and macro organisms like viruses, bacteria, fungi and intestinal worms.

Acharya Charaka has given three main procedures to combat krimi rogas viz. Nidana parivarjan (to avoid the factors responsible for disease) Apkarshan (removal of krimis from the affected site) and Prakriti vighat (to change the environment favourable to growth of microbes). This is very close to practice of modern medicine for microbes where antimicrobials are used to kill or stall the micro organisms.

An overall survey on krimi reveals that in diseases like jwara, atisar, shosh, abhishyand, shotha, puya etc. The causation by krimis (microbes) should always be kept in mind and line of treatment planned accordingly.

There are many groups of drugs described by the great physicians of Ayurveda for tackling diseases caused by different factors, possibly by microbes. These groups of drugs are very helpful and provide guidelines for future studies and research to modern day scholars of Ayurveda and other branches of modern science. These groups are Krimighna, Kusthaghna, Vranropana, Vranshodhan, Kaashar, Jwarghna, Atisaraghna, Bhutaghna, Phiranghar and updhansa-har etc. These groups have been proved to be having antimicrobial activity.

WHY TO LOOK FOR ANTIBACTERIAL AYURVEDIC DRUGS?

The increasing failure of modern antibacterial drugs and ever increasing side effects and adverse effects produced by these drugs have prompted scientists to look for alternative safer drugs to combat ever-increasing and resistance producing microbes. Antibacterial effects of many drugs obtained from plants offer a new hope for researchers to study them and present them to the masses in form of safer and natural alternatives to synthetic and toxic drugs. Laboratories of world have found literally thousands of phyto-chemicals which have inhibitory effect on all types of micro organisms in vitro. It would be advantageous to standardize methods of extraction and in-vitro testing of these drugs, so that the research is more systematic and interpretation of results more acceptable to the world.

It is estimated that plant materials are present in, or have provided models for about 50% of western drugs. Many commercially proven drugs used in crude form in traditional or folk healing practice or for other purposes suggested potentially useful biological activity. The major benefits of using plant derived medicines are that they are relatively safer than synthetic alternatives offering profound therapeutic benefits and more affordable treatment.

Some plants which have shown antibacterial effect during studies in different places are as follows:

1. *Azadiracta indica*- Antibacterial, antifungal and antiviral, Antimalarial and for cutaneous diseases.
2. *Allium sepa*-Antibacterial and antifungal, useful in reducing scarring in TB.
3. *Anacardium occidentale*-In gram+ve and gram-ve infections especially for tooth decay and Acne.
4. *Berberis aristata*-Effective in vibrio cholerae, Leishmania donovani, effective in cholera and leishmaniasis.
5. *Areca catechu*-Antibacterial and antifungal activity useful in Trichophyton rubrum and e-coli infection.
6. *Curcuma longa*-Effective in staphylococcal infections.
7. *Mentha arvensis*-Useful in salmonella typhi infection.

8. *Momordica charantia*-In gram+ve and gram-ve infection and fungal infections.
9. *Moringa oleifera*-In staph pyogenes, shigella dysenteriae and B. subtilis infection.
10. *Nigella sativa*-In vibrio cholerae, e-coli and shigella species.
11. *Ocimum sanctum*-In staphyl aureus, E-coli, acts as antiseptic, has antitubercular effect.
12. *Plumbago zeylanica*-Antibacterial, antifungal effect in liver enlargement and liver ailments and anticancer effect.
13. *Rubia cordifolia*-On Staph. aureus, E-coli. *Tinospora cordifolia*-Antibacterial and hypoglycemic effect.
14. *Withania somnifera*-In gram+ve infections and has antibacterial, antitubercular and antifungal action.

The above mentioned drugs are only a few of thousands of drug studies conducted in different parts of world and provide a lead to scientists to explore more and more plants for the benefit of mankind.

In addition to some of the single drugs mentioned above there are thousands of compound preparations described in different Ayurvedic texts which have Antibacterial effects. To name only a few, we find antibacterial effect of Gandhak Rasayan, Kaishore guggul, Panchtikta ghritha guggul, Nimbadi Choorna, Mahasudarshan churna, Arogyavardhini vati, Kutajarista, etc. In our day today practice and in clinical trials also, there are many Rasa preparations like Rasparpati, Ras sindoor, Hartal Bhasma etc which are proved to be effective in different infectious diseases. These drugs are being used since thousands of years with a lot of success.

The need of the hour is to standardize these preparations so that they can be used more successfully & with minimum or no side effects. The great Ayurvedic Physicians have provided us lead and now it is the duty of young and experienced scientists and Physicians of this generation to develop these drugs and make them more acceptable & beneficial for the people of the world.

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Pharmacovigilance in Present Scenario

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Introduction

Pharmacovigilance is the science of collecting, monitoring, researching and evaluating data on the effects of medicinal drugs, biological products, herbal and traditional medicines with a view to identifying, new information about adverse drug reactions (*a response to a drug that is noxious and unintended and occurs at doses normally used in man for the prophylaxis, diagnosis or therapy of disease, or for modification of physiological function*) and preventing harm to the patients.

It has always been considered a critical activity by almost all the key stake holders associated with drugs and its high place in organizational priorities has never been questioned. From time to time episode like Thalidomide disaster (1962), and cardiovascular risks posed by COX-2 inhibitor (2005) only adds emphasis to this ever evolving medico regulatory discipline.

At present approximately 80% of the world population is dependent on traditional medicines, especially in the third world countries. Even developed countries are using them as “Complementary and Alternative Medicine (CAM)” and as food supplements.

Aim of Pharmacovigilance

- Early detection of hitherto unknown adverse reactions and interactions.
- Detection of increase in frequency of known adverse reactions.
- Improve patient's care and safety in relation to use of medicines and all medical and paramedical interventions.
- Identification of risk factors and possible mechanism of adverse reactions.
- Contribute assessment of benefit, harm, effectiveness and risk of medicines encouraging their safe, rational and more effective use.
- Promote understanding, education and clinical training in Pharmacovigilance and its effective communications to public.

Traditional medicines, though considered to be safe, are not devoid of ADRs, few evidences are given below:

- Hena (*Lawsonia inermia* Linn) caused dermatitis when used as skin paint. Further more Henna also caused haemolysis in G-6-PD deficient individuals.
- With a combination of anti-diabetic drug, Garlic produced hypoglycemia.
- Kava-kava which produced anti-anxiety and sedative effects also produced liver toxicity...
- *Ginkgo biloba*, alone produced serious side effects i.e. bleeding complications. With a combination with Thiazide diuretics it increases blood pressure and with Trazodone (sedative, anxiolytic) caused coma.

Specific issues of traditional medicine in the context of Pharmacovigilance.

- There is no difference in principles between the Pharmacovigilance of traditional medicines and other medicinal systems.
- Strict drug regulations regarding launching, manufacturing and sale of traditional medicines.
- A data-base should be created for the safety and monitoring of the traditional medicines.
- WHO's herbal ATC classification should be applied to classify and coding the traditional medicines.
- The Pharmacovigilance centers have to be equipped with laboratories to analyze the traditional medicinal products.

What and how to report

The reporter sends case reports, on specially formatted reporting forms, to the Pharmacovigilance centers. Reporting on traditional medicines should be as accurate, complete and scientifically precise as possible. Due to the wide variation in the constituents of same traditional medicine from different manufacturers, detailed information regarding the suspected traditional medicine should be provided including the brand or ingredient name, manufacturer, country of origin, dose, dosage form, administration route, start/stop dates and indication for use.

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Indian regulatory requirement as per Amendment schedule-Y:

With the latest Amendment (20th Jan, 2005) to the schedule-Y of Drug and Cosmetic Act, 1945 as follows:

Appendix-XI (Format for ICSR submission to DCGI).

1. Patient Details (identifier) - Mandatory

- Initials and other relevant identifier (hospital/OPD record number etc)
- Gender
- Age and/or date of birth
- Weight
- Height

2. Suspected Drug(s) - Mandatory

- Generic name of the drug
- Indication(s) for which suspected drug was prescribed or tested
- Dosage form and strength
- Daily dose and regimen (specify units - e.g., mg/ml, mg/kg)
- Route of administration
- Starting date and time of day
- Stopping date and time, or duration of treatment
- Other Treatment(s)

Provide the same information for concomitant drugs (including non prescription/OTC drugs) and non-drug therapies, as for the suspected drug(s).

3. Details of Suspected Adverse Drug Reaction(s)

- Full description of reaction(s) including body site and severity, as well as the criterion (or criteria) for regarding the report as serious. In addition to a description of the reported signs and symptoms, whenever possible.
- Describe a specific diagnosis for the reaction - Mandatory.
- Start date (and time) of onset of reaction
- Stop date (and time) or duration of reaction
- De challenge and re challenge information
- Setting (e.g., hospital, out-patient clinic, home, nursing home)

4. Outcome

- Information on recovery and any sequelae; results of specific tests and/or treatment that may have been conducted
- For a fatal outcome, cause of death and a comment on its possible relationship to the suspected reaction; any post-mortem findings.
- Other information: anything relevant to facilitate

assessment of the case, such as medical history including allergy, drug or alcohol abuse; family history; findings from special investigations etc.

5. Details about the Investigator - Mandatory

- Name
- Address
- Telephone number
- Profession (specialty)
- Date of reporting the event to Licensing Authority:
- Date of reporting the event to Ethics Committee overseeing the site:
- Signature of the Investigator

Better Pharmacovigilance

- Use remedies that come from a known source and a reliable supplier with the guarantees (certificate) for correct species identification.
- Implementation of appropriate purification procedures.
- Use remedies that are produced with the help of an effective quality control.
- Management system that ensures batch traceability, species identification.
- Testing, hygienic storage and safe distribution.
- Understand the process of metabolism of Ayurvedic remedies in the body.
- Be familiar with the current data and evidence regarding contraindications and drug-herb interactions.
- Prescribe in accordance with the Ayurvedic principles of dravyaguna vigyana.

Conclusion:

As more and more people are using some form of alternative medicines. Complementary and alternative medicine includes a wide variety of therapies.

With increasing use and rise in adverse drug reactions attributable to these medicines, it becomes imperative to monitor the safety of traditional medicines. Pharmacovigilance of traditional medicines is essential to ensure safe and rational use of these drugs for the benefit of the human race.

Ayurvedic Marma therapy: An Ancient art of Healing of ailments

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Abstract:

Ayurveda the ancient science of life has attracted scientific community due to unique approach of therapeutic modalities, Marma therapy is one of them. Ayurvedic Marma points are equivalent to the acupuncture points in Chinese system of medicine. Marmas are connected to the Chakras and Nadis of Yoga and can be used for balancing both body and mind. Through manipulating them we can recharge the Prana or vital energy for health, well-being and personal transformation. Marma therapy is one of the great tools of Yogic and Ayurvedic system of medicine. Certainly we can say that disease or lesion away from the Marma can be treated easily by application of certain pressure on Marma points. Acharya Sushurata has described 107 vital points in the body for the surgeons. As per Yogic and Vedic aspects these vital points have basic source of life process i.e. Oja, Teja and Prana, which is comparable to the Kapha, Pitta and Vata dosha of the internal biosphere and Soma, Surya and Anila of the ecosphere in the Ayurvedic system of Medicine. In Marma chikitsa we can try to vibrate or press vital points of the body to restore the normal functioning of Oja, Teja and Prana. But unfortunately this healing modality of Ayurveda is least practised or practised by few individuals and scientifically unexplored by scholars of Ayurveda. There is emergent need of scientific work so that the beneficial effects of Ayurvediya Marma vigyana can be disseminated throughout for the ailing humanity. In this context we will discuss about the fundamental aspects, aims, anatomical basis, physiological basis, & scope, procedure and applied aspects of Marma therapy.

Introduction

The Ayurvedic system of Medicare is based on the Samkhya and Yoga hypothesis of Acharya Kapila and Patanjali. These hypotheses are analogous to the quantum theory and Einstein's theory of relativity. The most fundamental outcome of these theories is that the observer, the process of observation and the observed are interdependent and

not separate. Thus we can say that Marmas are an important seat of psycho-neuro-endocrine-immunological energy that regulates the physical, mental and spiritual functions. Any injury to these vital parts may lead to variety of disorders including death. The principle of these Marmas provides evidence that diseases affecting these vital parts have bad prognosis. Certainly we can say that disease or lesion away from the Marma can be treated easily by application of certain pressure on it. Acharya Sushurata has described 107 vital points in the body for the surgeons. As per Yogic and Vedic aspects these vital points have basic source of life process i.e. Oja, Teja and Prana, which is comparable to the Kapha, Pitta and Vata dosha of the internal biosphere and Soma, Surya and Anila of the ecosphere in the Ayurvedic system of Medicine. During the aging these life process are gradually hampered that may lead to variety of disorders viz. gastrointestinal, neuromuscular, neurodegenerative, skeletal disorders, and metabolic disorders. Thus in old age all physiological functions are highly compromised due to impairments of body humors i.e. basic source of life process. In Marma chikitsa we can try to vibrate or press vital points of the body to restore the normal functioning of Oja, Teja and Prana. The same is discussed in this context with the following objects.

1. To understand fundamental aspect of Marma.
2. To identify the site of Marma.
3. To develop procedure of Marma therapy.
4. To understand, scope & applied aspect of Marma therapy.

Fundamentals of Marma

The Marma therapy is an untouched and clinically unopened chapter of Indian Surgery. It is the oldest treasure of Indian medicine/surgery from the Vaidic period. The knowledge of Marmas was known to the emperors and the warriors since Vaidic era. Rig Veda speaks of using protective coverings to protect these Marmas. It refers to prayer or mantra as the best protection.

Mahabharata contains many references to Marma. It mentions protective coverings for the Marmas of elephants and horses as well as soldiers.

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At that time great warriors' used their powers of Prana and mental force as fighting tools, energizing arrows with natural forces like fire and lightning. Its therapeutic approach was prohibited to the general individuals due to its acute effectiveness and its misuses in general public. Because Marma points are the important seat of vital energy, the therapeutic approach which is carried out on it, is very effective in acute stage. If it is carried out by untrained Marma expert, it may lead to various types of disability and even death. The Sage from south India, Agastya, is credited with codifying the 108 nerve centers or Marmas. These 108 vital points are used in Indian acupuncture, acupressure and the martial art in the tradition of Kerala.

During Buddha period the science of Marma was transformed in the form of different Martial art. According to the Siddha system, the entire universe originates from the union of Lord Shiva- being Sat and his wife Parvati-energy or consciousness force (Cit-Shakthi). Prana at rest is Shiva and in motion is Parvati. The Marma as a form of treatment connects to both Shiva and Shakthi forces. The Marma therapy is very popular in many places as a traditional skill. A number of bone setters and Nadi Vaidyas do their practice by Marma speciality. But still this science is obscure. As previously Yoga was the means and measures of achieving the spiritual gains. Marmas are key energy centers for the practice of Yoga on all levels from yoga postures to deep meditation. Yoga postures affect the energy held in the limbs, joints and spine which contains important Marmas. Asanas can be used to stimulate and balance Marmas in various ways. Marmas connect to the Nadis (subtle nerves) and chakras of the subtle body and mind. Thus Marmas are important for healing subtle and physical body. Marmas similarly have a place in higher Yoga practices of concentration, mantra and meditation. Special mantras can be used with particular marmas in order to increase physical or psychological strength, adaptability and immunity.

Now a day's Yoga is a therapy for the health promotion and disease cure in masses, in same way the implementation of Marma chikitsa may help in different medical and surgical illness in many ways. In Ayurveda, Sushruta was the first person who provided conceptual frame work to the practice of surgery and Marma therapy.

What is Marma

Marma is a Sanskrit word meaning hidden, or secret. The term is derived from the "Mri Dhatu" that means which causes death or disability. The word Marma has the meaning of essence, vital part, life spot and conjugation point, from where the Prana flows throughout the body. Sushruta has suggested that the knowledge of anatomy and physiology is essential for the exact study of surgical problems by the Ayurvedic surgeons. It is important to note that injuries on certain parts of the human body need more consideration; such part is known as Marmasthana. In this regards Sushruta has mentioned that a Vaidya, who attains thorough knowledge of the human body is known as Visharada.

Aims of Marma Therapy

- To explore the hidden knowledge of Marma therapy.
- To identify the complications and areas of Marma therapy.
- To research it on scientific parameter.
- To identify the vital points in relation to different diseases.
- To identify the site of vital points on human body & their effectiveness.
- To specify the name of particular Marma for particular disease.

Anatomical basis of Marma

The Marmas are composed of Mamsa- muscle, Shira- blood vessels; Snayu- ligaments and tendons, Asthi- bones and Sandhi- joints. It is not compulsory that all these structures may or may not be present collectively at a glance for the framing of a particular type of Marma.

सन्निपातः सिरास्नायु संधि मांसास्थि सम्भवः ।
मर्माणि तेषु तिष्ठन्ति प्राणाः खलु विशेषतः ॥ (सु०)

The Marmas are 107 in number as per Sushruta. They are composed of all five basic anatomical components.

1.Sira Marma-	41 in number
2.Mamsa Marma-	11 in number
3.Snayu Marma-	27 in number
4.Asthi Marma-	08 in number
5.Sandhi Marma-	20 in number

According to Vagbhatta there are six types of Marma. He has added sixth group of Marma known as Dhamani marma- Arterial. In addition to the 107 classical Marmas, the entire skin surface of the body can be included and considered in the context of Marmas, because it is always associated with the other Marmas.

Physiological basis of Marma

Marmas are vital points of the body and seats of life and energy. These are the seat of Soma, Vayu, Teja, Raja, Tama and Jeevatmaa. It is also known as Jeevasthana and Pranayatana. Any injury to these vital parts may lead to death, loss of function, intense pain and loss of sensation. This concept of Marma, is the basis of all martial arts and acupuncture/acupressure. According to Sushruta, due to injury of Mamsa marma, there may be loss of sensation of touch. By using this information, local anesthesia can be produced by irritating the Mamsa marma.

- On the basis of qualities Marmas are of three types-

1. Agneya 2. Soumya 3. Vayavya

- On the basis of surgical importance Marmas are of five types-

1.Sadhyah pranahara marma- They are 19 in number and Agneya; in their qualities. Fatal period within 7 days

2.Kalantarapranahara marma-

They are 33 in number and Saumya in their qualities. Fatal period- 15 days to 1 month

3.Rujakara marma- They are 08 in number and Agneya Vayavya in their qualities. Create intense pain.

4.Vishlyaghna marma - They are 03 in number and Vayavya in their qualities. Fatality depends on specific trauma.

5.Vaikalya kara marma - they are 44 in number and Saumya in their qualities.

Scope of Marma Therapy

Ayurveda is facing ancient concept with modern consideration. In this regards Marma therapy can be used in the elderly persons in following clinical conditions-

1. Disease of nervous system-The age related changes in the nervous system may be treated.
2. Diseases of muscle, ligament and joints, They are greatly hampered in old age.
3. Sciatica syndrome, muscle atrophy& dystrophy etc.

4. Diseases of blood vessels and heart: The age related cardiovascular problems are hypertension, hyperlipidemia, IHD, CHF etc.

5. Diseases of joints-Osteoarthritis, rheumatism and spondylosis

6. Diseases of bones-Osteoporosis, osteomalacia etc.

Procedure of Marma Therapy

In ancient Vedic times, marma points were called bindu a dot, secret dot or mystic point. Like a door or pathway, activating a marma point opens into the milieu (interior) of the body. The body is a silent, universal, biochemical laboratory. It is operating every moment to interpret and transform arising events. Touching a marma point changes the body's biochemistry and can unfold radical, alchemical changes in one's makeup. Stimulation of these inner pharmacy pathways signals the body to produce exactly what it needs, including hormones, and neurochemicals that heal the body, mind and consciousness. This deep dimension of marma therapy has the potential to unfold spiritual healing. Like other surgical procedures the preparatory measures are also important in Marma therapy.

Preparatory measures

1. The person should be eligible for therapeutic oilation and fomentation (anti Vata drugs)
2. It is used for relaxation as well as giving tone to the muscle and promoting blood circulation.
3. Massaging with oil should be in a direction away from the heart. Sometimes it is also done in reverse direction in order to help venous return.
4. Massage is performed in circular form over the abdomen and joints.
5. Time and duration of massage and fomentation is 30- 45 minutes.
6. Do not apply direct heat over the head, heart, genitals and eyes.

Uses of Massage & Fomentation

- It permits transfer of heat, vital energy & health.
- It accelerates the blood circulation and oxygen to the entire body.
- It accelerates the lymphatic circulation.
- It relieves local pain, inflammation and brings about systemic purification.
- It promotes functional ability of nerves, muscles and tendons.
- It prevents stiffness and sclerosis of blood vessels.

Rhythmic massage and fomentation have a capacity to open the body's energy pathways, soothe the nervous system and balance the three Doshas i.e. - bioenergies.

Principal procedure

1. Screen the patient eligible for Marma therapy.
2. Before starting this procedure life saving drugs should be collected.
3. Light diet should be taken by patient before procedure.
4. It is performed with the help of fingertip by squeezing, direct pressure or vibrating the Marma points on bilateral body parts by Marma experts.
5. The time required for full course is 10-20 minutes. It should be performed twice in day.
6. Open mouth deep breathing should be advocated to the patient during procedure.

By applying Marma massage on Marma point, it harmonizes the three biological humors i.e.-Vata, Pitta and Kapha. Thus it is the direct way of healing to harmonize the Prana in the body and is helpful in a variety of disorders.

Post therapeutic regimens.

1. Take rest for 10- 20 minutes.
2. Take light diet after procedure.
3. After Marma therapy following are to be avoided.
 1. Loud speaking
 2. Over eating
 3. Continued sitting
 4. Too much walking
 5. Excess anger
 6. Cold bath
 7. Too much use of vehicles
 8. Excessive coitus
 9. Retention of natural urges.

Use of Marma therapy in the elderly

Aging is a complex multi-factorial process, which begins before birth and continues through out the entire life span. It takes place at different rates in different situations. So the elder persons are prone to develop variety of ailments related to bones, joints, ligaments, muscles, blood vessels and also psychiatric. The Marmas are composed of five basic components viz-Mamsa, Sira, Snayu, Sandhi, Asthi and it is important center of vital energy. In old age these Marma component and vital energy gradually declines, which may lead to variety of psycho-neuro-immunological disorders. It can be cured or checked by Marma therapy up to some extent. Following are the conditions in which Marma therapy can be used.

1. In Traumatic nerve damage, Monoplegia. Paraplegia, hemiplegia.
2. In diseases of Nerves and Brain: Mono-neuropathy, Polyneuropathy, Brain atrophy, Parkinson's disease, Alzheimer's disease, Dementia, Fall syndrome.
3. In Orthopedic disorders- Vertebral disc prolapse, Spondylosis, Scoliosis, Lordosis, osteoporosis, Osteoarthritis.
4. To reduce pain of nerves, muscles, bones & joints
5. To produce anesthesia during surgical interventions.
6. To improve the function of body by achieving the homeostasis of body humors.
7. To improve deformed parts of the body in to healthy state.
8. To cure P.I.V.D.

Thus we can say that this old hidden knowledge of Ayurveda has come in the light of modern era very slowly. It is a duty of Ayurvedic scholars to come forward and relight its concept in the era of conventional system of medicine, so called modern system of medicine. The results of Marma therapy are quiet promising and it opens new vistas in the management of a variety of neuro-muscular, degenerative, traumatic, and orthopedic disorders in near future.

Vyadhikshamatwa & Immunization Its Ayurvedic and Modern Concepts

Dr.Tanmay Bagade (MS)

INTRODUCTION

Human body is prone to get diseased when it is exposed to Vyadhi Hetus. But the body tries to resist these Hetus in order to keep the body healthy. In Ayurvedic texts, Vyadhikshamatwa has been defined as the inherent capacity of the body either to avert the causation of disease or to check its intensity and prepare the body to withstand crisis when afflicted by diseases. This has been named as immunity in modern science. This immunity is bound to get decreased due to many factors, so to protect & increase immunity, Immunization is done. Immunization is another concept, about which each and every Practitioner should be aware of. It is a part and parcel of both Pediatric and Obstetric practice. Question arises whether different methods of increasing Vyadhikshamatwa or Bala adopted by Ayurveda can be applied to the modern theory of Immunization or not.

VYADHIKSHAMATWA

Charaka has mentioned this concept in Sutrasthana. According to him, different individuals have different magnitudes of Vyadhikshamatwa and hence, all the individuals are not capable to resist the disease.

He says,

“ न च सर्वाणि शरीराणि व्याधिक्षमत्वे समर्थानि भवन्ति !”
(च.सू. २८/७)

Further, he explains that even if an individual with good magnitude of Vyadhikshamatwa is affected by a disease, he is relieved by that disease early, without any treatment or by minimal treatment only. Chakrapani, while commenting on this verse has explained Vyadhikshamatwa in a beautiful way, He says,

“व्याधिक्षमत्वं व्याधिबलविरोधित्वं व्याध्युत्पाद प्रतिबंधकत्वमिति !”
(चक्र.च.सू. २८/७)

i.e., Vyadhikshamatwa is the resisting power of the body, competent enough to arrest the occurrence progress or re-occurrence of the disease.

Modern science also defines Immunity as follows, “Immunity is the security against a particular disease (व्याध्युत्पादप्रतिबंधकत्वम्); non-susceptibility to the invasive or pathogenic effects of foreign micro-organisms or to the invasive pathogenic effects of antigenic substances (व्याधिबलविरोधित्वं).

Although there are many factors responsible to determine

the Vyadhikshamatwa of an individual, the classics have described “Bala” as a major factor. To understand the concept of Vyadhikshamatwa better, we should understand the description of “Bala” because both go hand-in-hand.

CONCEPT OF BALA

Bala has been considered as the most vital factor in the body to ward off diseases or to maintain the healthy status of the individual.

The term ‘Pratyanika Bala’ is also described by Charaka in his compendium for immunity. He says, when this decreases in potency (प्रत्यनीकबलक्षयात्), Doshas become aggravated and produce a disease. Due to this Pratyanika Bala, Doshas remain in a dormant stage in the body, as seed in the soil.

Chakrapani comments the same,

प्रत्यनीकस्य कालप्रकृत्यादेर्दोषविरुद्धस्य बलक्षयः तेन दोषवृद्ध्या यदा प्रत्यनीकस्य क्षयो भवति तदा.. ! (चक्र.चि. ३/६८)

JUSTIFICATION OF BALA AS IMMUNITY

Question arises whether we can take Bala as Ayurvedic concept of Immunity. There are many references which suggest that Bala is the basis of sound health and has the capacity of resisting or controlling the vitiation of Doshas and resultant diseases, also its importance in maintaining the health status of individual.

From the following references, we can conclude that Bala may be considered as the modern concept of Immunity:

बलं ह्यलं निग्रहाय दोषाणां ! (च.चि. ३/१६६)

बलादिष्ठानाम् आरोग्यम् ! (वा.)

बलमूलं हि जीवितम् ! (वा.)

रक्षेद्बलं चापि नरस्य नित्यं तद्रक्षितं व्याधिबलं निहन्ति ! (सु.चि. १८/३)

The normal functions of Bala described are:

तत्र बलेन स्थिरोपचितमांसता सर्वचेद्वास्वप्रतिधातः स्वरवर्णप्रसादो बाह्यानामाभ्यन्तराणां च करणानामात्मकार्यप्रतिपत्तिर्भवति !!

(सु.सू. १५/२०)

- Firm and well developed Mamsa.
- Unobstructed movements.
- Good Swara, Varna.
- Normal functioning of all organs.

Bala is also referred by the terms:

- Praakruta Sleshma,
- Sarwasara,
- Jeeva Shonita,
- Oja.

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Though in different instances, these terms are used to describe Bala, in my opinion these are the contributing factors which together are responsible for Bala.

PRAAKRUTA SLESHMA:

It is the normal Kapha Dhatu that is responsible for Bala. (It is also called Ojas)

प्राकृतस्तु बलं श्लेष्मा, स चैवोजसः स्मृतः काये !!

(च.सू.१७/११७)

SARWA SARA:

It is the essence of all dhatus. The person having good Saratwa of all dhatus will not suffer from diseases; in case he is attacked by disease, the severity will be less. एतत्सर्वधातुसारोपचयं लक्षणेन बलेन !! (डल्हण.सु.सू.१५/२०)

JEEVA SHONITA:

It is the purity of blood that is responsible for Bala. It is also responsible for sustaining Praana.

तद्विशुद्धं हि रुधिरं बलवर्णसुखायुषा !

युक्ति प्राणिनं प्राणः शोणितं हि अनुवर्तते !! (च.सू.२४/४)

CONCEPT OF OJA:

Oja is said to be the prime factor for Bala in the body.

बलकारणभूतमोजः ! (ड.सु.सू.१५/२०)

Many times both of these are used synonymously. The importance of Oja is described by our Acharyas as follows:

येनौजसा वर्तयन्ति प्रीणिताः सर्वदेहिनाः !

यद्यते सर्वभूतानां जीवितं नावतिष्ठते !! (च.सू.३०/९)

ओजो देहस्थितिनिबन्धनम् !

देहसंश्रया विविधा भावा ओजसो निष्पद्यन्ते !

ओजसि तिष्ठति सति पुरुषो तिष्ठति !! (अ.ह.सू.११/३७)

It is the Oja which keeps all living beings refreshed. There can be no life without Oja. It controls the vitality & longevity of the body. There are many opinions about concept of Oja.

Few are mentioned here :

ओजः हृदयस्थः सर्वधातुसाररूपम् ! (चक्र.च.चि.१५/३)

परं तेजः ओजः ! (अ.सं.सू.१९)

शरीर रस स्नेहः ! (अ.सं.सू.१९ & च.सू.३०/११)

सप्तधातु स्नेहः ! (सु.सू.६/१५)

ओजः शुक्रस्य मलः ! (अ.ह.शा.३/६४)

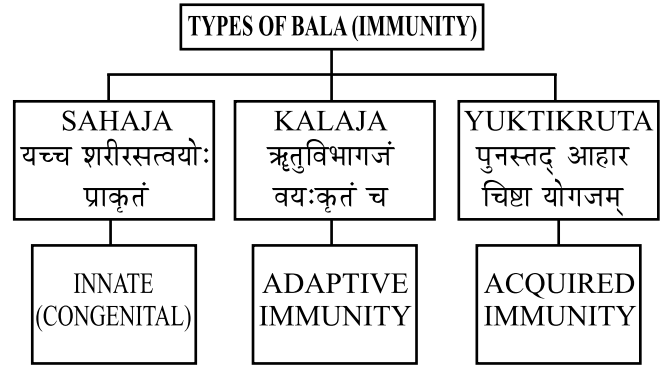
ओजः शुक्रस्योपधातुः ! (शा.पू.५)

Oja is a substance recognized from the Vedic period as an entity responsible for strength, vigor, good health, prevention-cure of diseases. Oja is present in the body in the form of Sara or essence of every Dhatu individually as well as collectively and is intimately associated with Shukra Dhatu. Its intimate relationship with Dhatus like Rasa, Rakta & Shukra, its similarity in properties with Kapha, its production during the fetal life & its relative importance to that of Garbha have made Acharyas compare it with these entities in a few contexts. Bala &

Vyadhikshamatwa of the body are the effects of Oja and hence they reflect the status of Oja in the body. It cannot be exactly co-related with any particular substance described by modern science, yet it seems that nearest parallel to it in modern science is the concept of Antibodies or Gene-proteins.

TYPES OF BALA:

त्रिविधं बलमिति सहजं कालजं युक्तिकृतं च ! (च.सू.११/३६)



ENHANCING FACTORS OF BALA

While the modern science is still working on what factors can enhance the immune system of the body, our Acharyas have given a detailed explanation about the factors that are responsible to enhance Bala (Bala Wardhana)

बलवृद्धिकरास्त्वमे भावा भवन्ति ! तद्यथा – बलत्वपुरुषे देशे जन्म बलत्वपुरुषे काले च, सुखश्च कालयोगः, बीजक्षेत्रगुणसंपच्च, आहारसंपच्च, शरीरसंपच्च, सात्त्व्य संपच्च, स्वभावसंसिद्धिश्च, यौवनं च, कर्म च, संहर्षश्चेति !! (च.शा.६/१३)

- Birth in a country, where people have good Immunity (Bala).
- Birth at a time when people naturally gain good Bala.
- Favorable disposition of time.
- Inherited qualities of parents.
- Good constitution, etc. are the Bala enhancing factors.

IMMUNIZATION – ITS AYURVEDIC METHODS

Though the word Immunization is the contribution of modern science, its concept is not new. Ayurvedic classics are based on preventive as well as curative aspects (स्वस्थस्य स्वास्थ्य रक्षणम्). Charaka says that body can be protected from disease causing agents by using the same injurious substances before their presence in the body. Purwamabhisamskara is the word described by him to describe this.

तथाविधैश्च द्रव्यैः पूर्वमभिसंस्कारः शरीरस्येति ! (च.सू.२६/१०४)

This description can be taken as Immunization theory. There are many drugs described in the texts which are used to increase Bala, thereby providing protection against diseases.

These can be grouped as:

Rasayana, Vaajikarana, Balya, Brinhanaya, Jeevaniya, Urjaskara, etc.

The disease preventing and health enhancing aspects are described in detail in Ayurvedic texts. Starting from the Garbhadhana to the different Samskaras in Infants, all are the Ayurvedic methods of Immunization.

GARBHADHANA VIDHI:

Many drugs which enhance the qualities of Shukra as well as Stree bija are mentioned in this context. The procedure of Garbhadhana Vidhi helps in producing a healthy child.

GARBHINI PARICHARYA:

The monthly regimen during the Ante-natal period described by our Acharyas has very good contribution in the outcome of a child having good Immunity. A recent study done by Department of Health & Human Sciences, US, suggests that Systemic health care beginning long before pregnancy which includes Pre-conceptional and Ante-natal care, prevents many medical conditions in the foetus

When we talk about Immunization, it mainly revolves around the Infant. There are many methods mentioned in Classics, which are said to increase Bala (Immunity) of the child.

Out of these, the main are Stanya Pana & Suvarna Prashana.

STANYA PANA:

मातुरेव पिबेत् स्तन्यं तत्परं देहवृद्धये ! (अ.उ.१/१५)

स्निग्धं स्थैर्यकरं शीतं चाक्षुष्य बलवर्धनम् ! (का.वही.४५/५८)

Stanya-pana gives Bala to the infant and promotes growth. Detailed description is available about the benefits and importance of Stanya Pana. Charaka has advised to start it immediately after birth of child (Cha.Sha.8/46)

In modern science, there is a vast description regarding Breast feeding. Its importance in enhancing Immunity is an established fact.

Exclusive breast –fed infants have lower risk of developing Diabetes mellitus, Childhood Lipoma, Liver disease, Bronchial Asthma & Hypertension in later life. It is also found that IQ of Breast-fed children is more than that of non-breast fed children.

SUVARNA PRASHANA

Suvarna Prashana is an exclusive Ayurveda theory, described by almost all texts of Ayurveda. It can be termed as Immunization. Though there is not much research done on this subject, many Ayurvedic Practitioners practise this and have proved its efficacy in enhancing Immunity.

सुवर्णप्राशनं ह्येतन्मेधानिबलवर्धनम् ! (का.पु.४-५)

Different Acharyas have mentioned different ways of Suvarna Prashana:

Lehana with Madhu & Ghrita, with balya drugs, etc.

Vagbhatta has mentioned 4 yogas which are Suvarna Yukta which enhance Immunity (Bala).

References: Ka.Pru.4-5, Va.U.1/47-48, Sha.Pu.6/27, etc.

Kashyapa says, Madhura, Snigdha, Sheeta, Laghu, etc. diets are responsible for the Vrudhi of Oja (Immunity). So children should follow diets having these qualities. Kashyapa has mentioned many Yogas in Lehadhyaya for enhancing Bala of the child.

Brahmi Ghrita, Suwardhana Ghrita, Abhaya Ghrita, Panchagavyaadi Ghrita(Charak), Saraswata Grita (A.Hri), etc., are some of the Yogas mentioned for enhancing Bala.

मधुरस्निग्धशीतानि लघुनि च हितानि च !

ओजसो वर्धनान्याहुस्तस्माद् बालांस्तथाऽऽशयेत् !!

(का.सं.सू.२७/१६)

Apart from the above descriptions, we find references of different Sanskaras, which are to be performed on the child, which may be responsible for increasing Immunity. There is a Malayalam Text Book, Arogya Raksha Kalpadrum, by Vaidya Gopal Pillai, which has description of an Immunization Schedule, where Ayurvedic drugs are used. Suvarna Prashana is also mentioned here. From the detailed description of Ayurvedic methods of Immunization in this text; we can say that he must have surely done undocumented successful trials regarding this subject. Clinical trials of a few drugs have been conducted. Bala, Baladi Avaleha, Tulsyaadi Avaleha, are found to protect children from URTI. Significant increase in IgG, IgM & IgA, was noticed in these cases.

The above studies are pointer to initiate more extensive as well as intensive studies to explore preventive aspects of Ayurvedic Drugs with special reference to Immunity.

CONCLUSION

Immunization is the major success story of Public Health of this century.

There are many new diseases arising day by day. Not all diseases can be prevented by Immunization. Ayurvedic methods of Immunization, which was based on no. of observations, holds much value for increasing Immunity of a child. By systematic controlled, documented trials, we can show that the methods suggested by our Acharyas are the best way to Immunize the child. Ayurvedic methods not only increase the Immunity, but they also increase the intelligence & life span of the child. They also help to maintain healthy status, growth, etc. of the child.

Due to awareness amongst the present generation, more and more people plan to have one, or at the most two children. A healthy and intelligent progeny is the only thing they expect.

Thus by applying our methods and with the help of modern techniques, we can surely achieve the aim of “Health for all”.

Research Oriented Ayurvedic Education in Under Graduate Level

Dr. Prasanta Kumar Sarkar

The Ayurvedic system of medicine at present mainly confined to India, but had a much wider reorganization and prevalence in the past as early as the origin of human civilization and Vedic period. The system has undergone many changes of fortune in the course of its long and interesting history. However, it still remains the mainstay of medical relief to the majority of people in this country. Even in the neighboring countries the system of Ayurveda is reported to be fairly prevalent, and today also Ayurvedic system of medicine continues to be the most widely accepted system of medicine for the same. The Ayurvedic system of medicine is the distilled core of knowledge obtained after years of trial, experience and experimentation. Hence, it is important for anyone interested in research in Ayurveda to understand the principles behind it and the rationale behind the methods of diagnosis, treatment, preparation of its medicines, etc. Since the bulk of the research is carried out by scientists who are not trained in Ayurveda, caution has to be exercised to make sure that the research is a fruitful one for Ayurveda.

Research in Ayurveda is needed for the development of this system and also in taking this system of medicine forward. The present research works being carried out in Ayurveda are standardization and quality control of drugs, correlation with modern parameters, toxicity studies, finding active ingredients and developing new drugs, most of these topics have got nothing to do with Ayurveda. These approaches may continue, but there is stronger need to develop suitable methodology with clinical as well as laboratory evidence, based on Ayurvedic fundamentals and approaches. This will enable the research in Ayurveda to develop in true sense and take forward this system of medicine. This will only be possible when the people with thorough knowledge in Ayurveda take interest in research in Ayurveda. Research in Ayurveda should be categorized into two aspects. One is to improve the science, and the demand for this should come from the Ayurvedic community. Some of the research problems of interest to Ayurvedic physicians are pharmacological properties of new plants, new formulations with new plant entities, Ayurvedic nutritional properties of new food materials and items & looking into the possibility of how to use present day diagnostic techniques for Ayurveda. The

second aspect of Ayurvedic research is due to present day compulsions and under this would come studies such as quality control of drugs, clinical trials documentation, studies on metallic preparations and toxicity studies of these drugs¹.

At present a big challenge is to get scientists interested in research work in the field of Ayurveda. The prime need is to expose best minds and best scientists to the accumulated wisdom of Indian systems of medicine, including Ayurveda. Not only that, raw talent is also needed to explore the hidden treasure of the Ayurvedic system of medicine and that will be possible only when the new generation take interest in research activity. For that purpose, from the Under-Graduate (UG) level teaching on research methodology should be incorporated in syllabus and the motto will be to grow interest in research among the new generation of Ayurvedic scholars.

There are three apex institutions of Ayurveda at national level, Gujarat Ayurved University, Jamnagar, Banaras Hindu University, Faculty of Ayurveda and National Institute of Ayurveda, Jaipur; these institutions conduct under-graduate and post-graduate courses; and also organize research activities at post-graduate level. There is an autonomous organization to conduct research on Ayurveda namely the Central Council for Research in Ayurveda and Siddha for coordination, development and promotion of research activities through its 39 peripheral centres under the Department of AYUSH, Ministry of Health and Family Welfare, Govt. of India.

Number of under graduate and post-graduate teaching institutions in Ayurveda is 209 and 59 respectively and number of PG specialisations are 16². Research works have been carried out in almost all the PG institutions. However most of the research works are not up to the mark, and the numbers of research papers published in peer reviewed indexed journals are very minimum. Very rarely a scientific paper is seen in the indexed journals, where the work has been carried out in Ayurvedic institutions.

In the modern medical system also the situation is not so bright. There has been a phenomenal rise in the total R&D expenditure in India. Since independence from about Rs.20 cores in 1958-1959; it went up 400 fold (Rs.8500 crores) in 2004. The number of Science and Technology institutions has also increased tremendously³.

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However, the publication record has been rather disappointing. The number of scientific papers from India included in the Science Citation Index actually fell from 14,983 in 1980 to 12,127 in 2002⁴. Medical research is in a worse shape. Although considered as an important integral part of medical education research gets the lowest priority in the national agenda. According to an ICMR survey of scientific papers published during 1990-1994, almost 20 per cent of the colleges had not published a single paper during this period⁵.

The situation has not improved since then. In fact, it has worsened and the number of medical colleges producing not even a single paper has gone up due to mushrooming of new colleges, most of which are often ill equipped. A number of reasons can be cited for the poor state of medical research in India. At the time of independence (1947) India had just 20 medical colleges admitting about 1200 students. Sixty years later the number of colleges has increased 13 folds and the seats to 30,000⁶. Although, numerically the nation has done well, the quality has suffered (seriously.) There is gross shortage of resources, both money and trained manpower⁷. Consequently, even the minimum supportive laboratory infrastructure is not available in a large majority of medical colleges. Staff and therefore students are hardly exposed to the expanding frontiers of medicine and biomedicine and have little or no understanding of modern technologies for research. In this atmosphere most teachers lack confidence in writing research projects. While all funding agencies have major programmes for medical sciences, there are very few takers. Starting from the Bhole committee (1943), several committees have been appointed to look into health manpower development with emphasis only on the service sector⁸. Hardly any attention has been paid to medical research. No committee/commission has addressed the critical issue of integrating advances in medicine and biomedicine into medical education and research to make the students globally competitive. But there are several indicators to show that future is bright. Medicine continues to attract the best brains. A fair number of students (roughly 5%) are also interested in research as is evident from:

A. Progressively increasing popularity of the ICMR Short Training Studentship (STS) programme. In the four-year period 2005-2008 the number of STS recipients has increased from 496 to 809, an increase of 163 per cent⁹.

B. Continued interest of students in highly successful National Medical Students' Research Conferences, which were focused on undergraduates. The first two Conferences were held under the banner of the Moving

Academy of Medicine and Biomedicine in Pune in October 2006 and in February 2008. Students' presentations at the conferences were of fairly good quality. The third conference, which is entirely managed by students, was held in Kasturba Medical College, Mangalore, in June 2009, and

C. Students' feedback at the second conference at which they passed a resolution to form an all India body, the *Indian Forum for Medical Student Research (INFORMER)*. This is perhaps the most opportune time to develop and strengthen the concept of "Research oriented medical education".

Some programmes are being started to attract the medical personnel towards research activity like,

1. Special programmes for the ICMR short training studentship (STS) winners,
2. Short duration (3-4 days) regional training workshops on research methodology including biostatistics, laboratory medicine, clinical research and medical ethics,
3. Short duration (one week) research-training programme,
4. "*Kishore Vaigyanik Protsahan Yojana (KVPY)*"¹⁰, etc.

In modern medical system also it may take several years to establish research oriented educational programmes both at the undergraduate and postgraduate levels. In the meantime a beginning could be made through 'out-reach' programmes such as 'Mobile workshops', a highly successful concept developed by the Academy in the last few years. The concept has now been extended to research training including hands-on training in laboratory medicine for which even the necessary laboratory equipment is transported to the host institute from the Academy's training center. It is hoped that this approach will be adopted nationally, with the help of leading medical institutes of the country. Help could also be sought of biomedical and life science research institutes as well as specialty organizations. Even six decades after independence, medical research, which is the mother of new knowledge, has remained a non-issue. If India were to emerge as a global leader, the emphasis must shift from 'importing' knowledge to indigenous generation of new knowledge. This cannot be done without developing research oriented educational programmes both at the undergraduate and postgraduate level. A major challenge for the newly formed Department of Health Research, Ministry of Health and Family Welfare, is to catalyze such programmes. The time to act is now¹¹.

In the field of Ayurveda also, the future of research looks to be bright, so many scientists are taking interest to conduct research. The Department of AYUSH has taken initiation and come up to encourage the researchers with various projects. Institutions are conducting

workshops on 'scientific paper writing'. Scholars are coming forward to publish their research work in national and international peer reviewed indexed journals. Institutions have started to involve the under graduate students in the Seminar/Symposia/ Workshop.

The World Health Organization (WHO) has prepared the protocol to conduct research on herbal medicine namely 'Guidelines for the regulation of herbal medicines in the South-East Asia Region' with the objective to propose to Member States like India a framework for facilitating the regulation of herbal medicines/products used in the regional medicine systems like Ayurveda¹². The proposed framework, which has a regional perspective, should help accelerate the establishment of appropriate mechanisms for registration and regulation of herbal medicines, based on criteria for safety of use,

therapeutic efficacy, quality control and pharma covigilance. Research and education always go hand in hand. Though, it holds more good in post graduate education, but it is needed to start the awareness and teaching on research methodology and statistics at the under-graduate level, so that interest in research in the field of Ayurveda grows. The needs are to incorporate lectures on research methodology and statistics in the under-graduate classes, to deliver lectures about the recent advancement through various research activities in the field of Ayurveda for increasing awareness. Special scientific session for the UG students should be included in the Seminar/Symposia/ Workshop. Arrangement of Awards for research activities among the UG level should be started to encourage the new generation towards research.

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Some Fallacies About Ayurvedic Medicines Causing Concern to The Common People.

Dr. Dwaipayan Kishore Basak

INTRODUCTION:

A few years back all the leading Newspapers were publishing the news that most of the leading countries of the world have banned the use and import of Ayurvedic medicines in their countries. It was to some extent true. They had only banned the Ayurvedic Medicines containing metals and minerals. They did not ban the use and import of Ayurvedic Medicines of plant origin or the herbs. They proved in their laboratories that some of the Ayurvedic Medicines containing metals and minerals are toxic and cause deposition of metals in different organs which is dangerous. It was only due to improper quantities of metals and/or minerals used to prepare the medicines along with inadequate purification technique. Even the toxic affects can also be found due to the intake of Ayurvedic medicines of plant origin if proper doses and proper purificatory procedures of the ingredients are not maintained. Because, there are so many plants which are toxic in nature like Cannabis, Aconite, Datura, Strychnine, Opium etc. which are popularly used in the preparation of Ayurvedic medicines.

FACTS:

Ayurveda is a system of medicine that is universally known and patronised as a holistic way of healing. But, now-a-days, success brings its controversies. The latest is the decision by Canadian Govt. to ban Ayurvedic medicines due to their reportedly high levels of heavy metals. This is not the first time that the controversies have occurred. Netherlands does not allow the import of Ayurvedic medicines but allows only the herbs after their mandatory tests. The American Medical Association made public in December, 2004, a study which found dangerous levels of heavy metals in Ayurvedic medicines.

There are so many Ayurvedic medicines which contain Mercury, Lead, Arsenic, Copper, Tin, etc. and they are popularly used to treat the diseases. If they are properly purified and proper procedures of preparations of medicines are adopted along with proper dose then no toxic affects will be found or there will be no heavy metal deposition in the organs. All the metals used in Ayurvedic medicines are first purified and then made into 'Bhasma' or Ash according to the authentic texts of Ayurveda and then used as medicines. In the form of bhasma the

chemical and the physical properties of the metals change and have such fine particles that there is no deposition of metals in the body. The body merely absorbs the necessary nutrients. The end products of these medicines are safe. But proper dose should be taken. If these medicines are administered in excess dose for long time then some adverse effects may be seen rather than any beneficial effects. If administered in low dose then inadequate efficacy or no efficacy will be found. All the ingredients used in these medicines should also be in proper quantity as mentioned in authentic texts. So, proper dose should be taken.

In some Âyurvedic texts, some plants are grouped into poisonous plant group. For example, Opium, Strychnine, Cannabis etc. These plants are popularly used in some Âyurvedic medicines. But they are used in proper dose and after proper purification. By consuming these plants as medicines we get effective result in some diseases. But, if they are administered in high dose without purification then they may be lethal. Nature has created nothing bad if properly used. Even the best known plants can produce bad effects if used in high dose for prolonged period without purification. Excess quantity of metallic preparations, after absorption, can not be metabolized by the liver and hence get deposited in different organs like liver, kidney etc. and start to damage these organs. Excess quantity of poisonous plant preparations, after absorption, directly affects the nervous system and muscles of some vital organs of the body and hence produce toxic effects and may even lead to death. For example, strychnine causes spinal poisoning, opium, datura and cannabis cause cerebral poisoning, and aconite causes cardiac poisoning.

AYURVEDIC PARAMETERS:

Ayurveda has given more emphasis on dose, purification and preparation of medicines. Âyurveda has a separate branch for these. This branch is known as 'Rasa Shastra and Bhaisajya Kalpana'. There is specialisation and super specialisation of this branch. The knowledge of 'Mâna' or measurement is very important and essential in this branch. Without the knowledge of weight and measurement appropriate combination of ingredients in a

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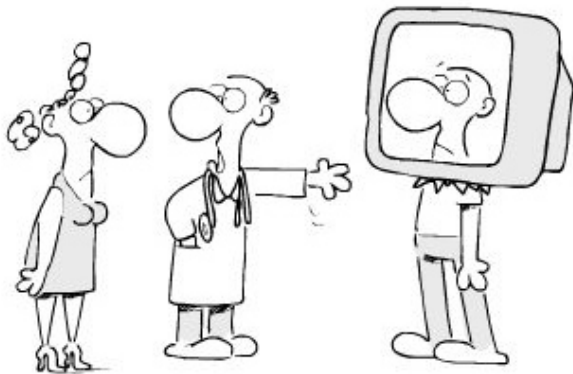
recipe is not possible. Measurement plays very important role in raw drug collection, preparation of different drugs, dose of medicine, dose of anupâna (vehicle) etc.

STEPS TAKEN BY GOVERNMENT:

A recent study by the Industrial Toxicology Centre, Lucknow, found cadmium, arsenic, mercury and lead in seven of the fourteen Âyurvedic products that were tested. But all these were within permissible limits or undetectable. Recently Indian Government has found it necessary to introduce a bill to regulate education and practice of Pharmacy in Âyurveda and other indigenous systems of medicines to ensure there is no compromise on the quantity of the ingredients and as a whole quality of the medicines. The Government also gives Good Manufacturing Practices (G.M.P.) certificates to the manufactures of Âyurvedic, Siddhâ and Unâni medicines which comply with the World Health Organisation's G.M.P. standards. But it has become difficult to implement the law due to huge number of involvement of small manufacturers.

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"Well, the good news is your husband is OK.
I can not say the same for the TV..."

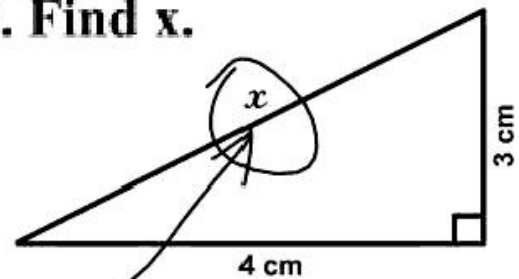
CONCLUSION:

There are some greedy businessmen who add spurious materials in the medicines and do not maintain the proper purification, dose and procedures of preparation of medicines for lust of money. But there is no cause for concern if the Âyurvedic medicines which are taken in the quantity prescribed by the qualified practitioners and if the medicines are devoid of any spurious materials.

Lastly, it has been described in the Âyurvedic texts that the dose of the Âyurvedic medicines will be determined by the Physician depending on the Time, Place, Strength, Digestive Capacity and Chronicity of the disease.

Answer on a blonde's Geometry test

3. Find x.



Here it is

संसार—धर्मः

डा. असित कुमार पाँजा

सती स्त्री यथा जन्मजन्मान्तरमेकस्यैव पुरुषस्य अनुगमनं करोति तथैव निश्चला प्रकृतिरपि एकस्यैव पुरुषस्य अनुगमनं करोति; पुनश्च यथा गृहिणीं परित्यज्य गृहपतेः गृहं न सुशोभते तथैव प्रकृतिं त्यक्त्वा पुरुषोऽपि संसारधर्मस्य निर्वाहं कर्तुं न शक्नोति। पुरुषः प्रकृत्याकर्षणे रतो भवति। सः भोगवासनायाः तृप्त्यर्थं जगति प्रविश्य भोगवासनायां प्रलिप्तः सन् स्वकीयजीवनमेव विनाशयति। प्रक्रियैषा नास्त्यद्यतनी, अपितु अनादिकालतः प्रवर्तमाना वर्तते।

को धर्मः? इति प्रश्नः चेत्तर्हि यस्य परित्यागेन वस्तुनः अस्तित्वमेव लुप्यते तन्नाम 'धर्मः' इति। इत्थं प्रत्येकमपि पदार्थस्य एको धर्मो भवति, यश्च तस्य प्राणस्वरूपो भवति। धर्म-प्राणयोर्नास्ति कोऽपि भेदः। यावत्पर्यन्तं वपुषि प्राणाः विद्यन्ते, तावत् देहधर्मोऽपि संरक्षितो भवति। प्राणस्य बहिर्निगमनेनैव सः धर्मः लुप्यते। धर्मेण विना कोऽपि कदापि स्वास्तित्वं संरक्षितुं न प्रभवति। अत एव सकलोऽपि पदार्थः स्वकीयधर्मरक्षणे प्रयत्नशीलो भवति। स्वधर्मरक्षणस्य एषा प्रवृत्तिरेव प्रकृतिरुच्यते। 'न भवति सर्वेषां धर्मः समानः, न च स्वधर्मरक्षणस्य प्रवृत्तिरेव समाना' इति स्मरणीयम्।

जगति पदार्थानामसंख्यत्वात् प्रकृतिरप्यसंख्या वर्तते। जडपदार्थं जीवं (चैतन्यं) चान्तरा बहु भेदो भवति तथा च द्वयोः चैतन्यवस्तुनोऽपि पार्थक्यं भवत्येव। इत्थं कथयितुं शक्यते यत् प्रत्येकं चैतन्यपदार्थ एव भिन्नः।

पुरुषः चेतनस्वरूपः प्रकृतिश्च जडरूपा निश्चला वा, तथापि अविच्छिन्नरूपेण चेतनपुरुषेण सहावस्थानानन्तरं जडप्रकृतिरपि पुरुषस्य चैतन्यधर्मलाभेन चैतन्यप्रवृत्तिं लभते। एवञ्च अचेतना प्रकृतिरपि चेतनवत् कार्यं करोति। प्रकृतिः पुरुषश्च परस्परं समन्वयकरणार्थं स्वकीयधर्मास्तित्वयोः परित्यागमपि कर्तुमुन्मुखौ भवतः। सकलधर्मवैभिन्न्येऽपि एतौ (प्रकृतिपुरुषौ) प्रेम्णा सद्भावनया चावस्थानं कुरुतः। कोऽपि कस्यापि त्यागं कर्तुमसमर्थः यतोहि परित्यागेन तु अस्तित्वनाशो जायते। प्रकृतेरेकमात्रं लक्ष्यमस्ति- पुरुषाय आनन्दप्रदानं सुखप्रदानञ्च। अत एव सा शतरूपा सहस्ररूपा च प्रकटिता भवति। इत्थं प्रकृतेः एतादृशि चिरप्रेम्णि वशीभूय पुरुषोऽपि तस्याः कृते स्वसर्वस्वं परित्यक्तुं तत्परो भवति। स च सर्वगः, सर्वातर्यामी, स्वतन्त्रः, वशी,

नित्यतृप्तश्च सन् प्रकृतेः प्रेम्णि स्वकीयं धर्मं विस्मरति तथा च सर्वदा स्वं नानाविधव्याधिग्रस्तम् अवगच्छन् दीनदुःखिजना इव जन्मजन्मान्तरं प्रकृतेनुसरणं कुर्वन् कामासक्तः सः गज इव जगत्यस्मिन् भ्रमति।

पुरुषस्य भोगायतनद्वयमस्ति - देहः (शरीरं) मनश्च। यद्यपि अनयोः पृथक् सत्ता (अस्तित्वं) विद्यते तथापि पुरुषः द्वयोरभेदतया सहावस्थानं भजते। एकस्य स्वस्थं स्वाभाविकञ्चावस्थानमन्योपरि प्रतिफलति। प्रकृतिः मनसः शरीरस्य च क्रमशः सत्त्वरजस्तमोमयी वातपित्तकफमयी च वर्तते। सर्वोऽपि जनः सुख-दुःखयोः, आनन्दविषादयोः, जन्ममृत्योश्च अवस्थां लभते। मानसी शारीरी च प्रकृतिः सर्वदा प्रयतते यत् मनः शरीरञ्च प्रकृतिस्थे स्याताम्। देहः अन्नमयकोषः, मनश्च प्राणमयकोषः। अन्नं विना देहो नष्टो जायते। भोज्यपदार्थानां स्थूलांशः स्थूलशरीरं, सूक्ष्मांशश्च सूक्ष्मरूपं मनः पोषयति। अत्र शरीरमनसोः कर्मसम्पादनाय केचन भृत्याः निवसन्ति ते च मनसः अधीनत्वेन पुरुषस्य अभिप्रायिककर्माणि सम्पादयन्ति।

कर्म द्विविधम् - शारीरं मनसञ्च। तत्र गमन-भोजनादिकं कर्म शारीरम्, मनसञ्च संकल्प-विकल्पादिकम्। शारीरकर्मणां भृत्याः कर्मेन्द्रियरूपाः, मानसकर्मणाञ्च भृत्याः ज्ञानेन्द्रिरूपाः कथ्यन्ते। एते भृत्याः मनसा प्रवर्तमानाः वर्तन्ते। मनसः ईश्वरः (प्रभुः) ज्ञानमस्ति, ज्ञानस्य च जीवात्मा (पुरुषः)। पुरुषस्य इच्छा ज्ञाने प्रतिफलति, तज्ज्ञानं मनः आदिशति, मनः इन्द्रियमादिशति, इन्द्रियञ्च तामिच्छां (कार्यं) तत्क्षणमेव सम्पादयति। इत्थं ज्ञान-मन-इन्द्रिययुक्तेन शरीरेणैव प्रकृतिपुरुषयोः सांसारिकधर्मः प्रवर्तते।

जीवात्मा एकः गृही, प्रकृतिस्तस्य गृहिणी, शरीरञ्च तयोः (जीवात्म-प्रकृत्योः) गृहमस्ति। गृहेऽस्मिन् कस्यापि वस्तुनः आवश्यकता भवति चेर्हि तस्याः आवश्यकतायाः पूर्वमेतौ प्रकृतिपुरुषौ सर्वदा अक्षुण्णरूपेण सततं व्यस्तौ भवतः। शरीरे यदा यस्य पदार्थस्य प्रयोजनं भवति तदैव प्रकृतिस्तस्य संग्रहणं करोति। प्रकृतेः सत्त्वरजस्तमोमयमपत्यत्रयं मनसि, शरीरे च पुरुषस्य विरुद्धं स्वभावशीलं वातपित्तकफमयमपत्यत्रयं वासं करोति। यदा एते सर्वे मिलित्वा अवस्थानं कुर्वन्ति तदैव जगति सुखं प्राप्यते परन्तु मनसः अधीनत्वेन अवस्थानादसंयमो जायते। सर्वेऽपि वृद्धाः सन्तः अपरनाशमिच्छन्ति। मनः यदा लोभपूर्वकं मिथ्या आहार-

प्राध्यापकः, मौलिक-सिद्धान्त-विभागः, राष्ट्रियायुर्वेद-संस्थानं, जयपुरम्

विहारं करोति तदा तस्य वातादिपुत्राः प्रकुपिताः सन्तः जगत्यस्थिरतां जनयन्ति। प्रकृतिपुरुषौ सर्वदा अस्य विनाशशीलस्य प्रकोपस्य निवृत्त्यर्थं प्रयत्नशीलौ भवतः। अनयोः सर्वप्रियं, शान्तं, दान्तं, विचारशीलञ्चापत्यं ज्ञानमस्ति। तज्ज्ञानमपि सर्वदा मनः प्रकृतिपुरुषानुकूलविषयेषु प्रवर्तयति, प्रतिकूलविषयेषु च निवर्तयति। अस्मिन् क्रमे यावत्पर्यन्तं मनः ज्ञानाधीनं भवति, इन्द्रियञ्च मनसः अधीनं भवति तावत्कालपर्यन्तं शरीरमपि पीडितं न भवति।

अपत्यस्य सुखदुःखमेव जनन्याः सुखदुःखं भवति अतः वाताद्यपत्यानां कोऽपि विकारः तत्क्षणं प्रकृत्या ज्ञायते, सा च शीघ्रातिशीघ्रं तत्प्रतीकारार्थं पुरुषं निवेदयति। पुरुषः तत्क्षणमेव ज्ञानमादिशति। इत्थमग्रे क्रमशः ज्ञानं मनः, मनश्च इन्द्रिय-मादिशति। तदनन्तरं मनसः आदेशेन इन्द्रियाणि कर्मसाधनपूर्वकं पुरुष-ज्ञान-मनो-देहानां पारस्परिकसद्भावनां रक्षन्ति। एतत्कार्यमेव 'स्वास्थ्य' मित्यभिधीयते। सकलगुणयुक्तस्यापि मनसः स्वभावः अतीवः चञ्चलः भवति अत एव पुरुषः ज्ञानं तस्य रक्षकत्वेन चालकत्वेन च नियुज्य निश्चिन्तो जायते एवञ्च ज्ञानं सर्वदा मनसः अधीनत्वेन व्यस्तं भवति। ज्ञानस्य कर्मक्षेत्रमस्ति - देहः जगच्च। ज्ञानं पुरुषाज्ञया अस्मिन् देहे जगति च भोग्यवस्तूनामास्वादानाय स्वकीयस्वास्थ्यलाभाय च मनः नियुङ्क्ते। मनः अपि ज्ञानाधीनत्वेन स्वस्थं, नीरोगं, बलवत् सौन्दर्यमयञ्च भवति तथा च जगतः सर्वविधविषयरसपानपूर्वकं पुरुषस्य संसारासक्तौ संतुष्टं भवति, विषयचिन्तने चास्मिन् सर्वदा रतं भवति।

यावत्पर्यन्तं पुरुषः प्राक्तनकर्मणि मोहितो न भवति तावत्पर्यन्तमेव ज्ञान-मन-इन्द्रिय-देह-प्रकृतिमयं जगदिदं प्रचलति। यदा पुरुषः प्राक्तनकर्मणि मोहितो भवति तदा तस्य बुद्धिर्भ्रष्टा जायते, ज्ञान-वैलक्षण्यं लभते, अज्ञानञ्च आगत्य ज्ञानमावर्तयति। एतादृशावस्थायां सत्यासत्य-हिताहित-मेध्यामेध्य-पथ्यापथ्यप्रभृतयः भेदबुद्ध्यः लुप्यन्ते तथा च मनः ज्ञानस्य अनुशासनं न मन्यते। पुनश्च अवस्थायामस्यां मनः स्वकीयबहिर्मुखीप्रवृत्तिलाभेन अनुशासनहीनतालाभेन च दुष्टेन्द्रियैः सह मिलित्वा विषयसुखं भुङ्क्ते तथा च प्रकृतिपुरुषयोः जगतः संतुलनं नष्टं भवति।

बुद्धेरपरं नाम अस्ति-'प्रज्ञा'। बुद्धेरपराधः प्रज्ञापराधो वा सर्वविधानिष्ठानां मूलस्वरूपो वर्तते। अवस्थायामस्यामेव मानवानां सत्यादिविचारज्ञानं नष्टं भवति विपरीत-बुद्धिश्चोत्पद्यते। वास्तविके जगति हिताहित-सत्य-मिथ्याप्रभृतीनि वस्तूनि न दृश्यन्ते। वस्तुतस्तु देश-काल-पात्र-प्रयोजनाऽप्रयोजनाद्यवस्थाभेदेन एकस्य एव वस्तुनः विविधनामानि रूपाणि च भवन्ति। मानवानां कृते एकः

समयः यः त्याज्यो भवति स एव पुनः अवस्था-विशेषे परमग्राह्यो भवति। यदा येन जीवस्य अभिमतसिद्धिर्जायते सैव मानवस्य कृते ग्राह्यो भवति, इतरपदार्थस्तु अग्राह्यो भवति। अन्यरूपेण, येन प्रकृतेः दुःखमुत्पद्यते, पुरुषस्य च आनन्दमयस्वरूपस्य हानिर्जायते, तदेव त्याज्यम्, अप्रियम्, असात्म्यञ्च भवति। एकस्मिन्नेव पदार्थे हितत्वमहितत्वं सात्त्विकत्वमसात्त्विकत्वञ्चावस्थानं करोति। पुरुषस्य प्रज्ञा तस्य पदार्थस्य विचारं कृत्वा द्रव्यान्तरसंयोगेन, संस्कारेण मात्रकालादिविचारैर्वी प्रकृतेरनुकूलं विदधाति। प्रज्ञावान् पुरुष एव प्रकृतेः प्रयोजनानुसारं व्यवहारेण समर्थः विचार्यकार्यमिदम् अहरहः शरीरे प्रचलति। यदा कस्मिन्नपि विषये स्वकीयस्य विचारबुद्धिः कुर्वता भवति तदा तस्मिन् तस्मिन् विषये अभिज्ञैः आप्तजनैः ऋक्छद्मदेशं गृह्णाति। सा प्रज्ञा एव शरीरस्य मानवानाञ्च परमहितैषिणी वर्तते।

भोगी पुरुषो यथा सस्त्रीको रथारोहणं कृत्वा जगति स्वाभिप्रहृतस्थानेषु विचरति तथैव प्रकृति-पुरुषावपि देहस्थेऽस्मिन्नारोहणं कृत्वा भोगकमनाया निवृत्त्यर्थमभिमतप्रदेशे रथस्य संचालनं कुरुतः, तथा च अभिमत-विषयान्निवृत्तौ भवतः। अस्य देहरथस्य अश्वः इन्द्रियं, बुद्धिः प्रज्ञा वा सूतः, मनश्च इन्द्रियाणां वल्गारूपिणी रञ्जुः वर्तते। पुरुषस्य संसारागमनस्योद्देश्यं भोगतृप्तिरेव अतः संसारी जीवोऽयं केवलं भोगाय एव भ्रमति।

संसारेऽस्मिन् पुरुषस्य सकलविधानिष्ठानां मूलमस्ति-'प्रकृतिः', दुर्विनीतस्य असंयतस्य अशान्तस्य च मनसः कृते प्रकृतिः, पुरुषः ज्ञानञ्च संतुष्टाः भवन्ति। मनसः दृष्टिः सर्वदा बहिर्मुखी भवति। अस्मादेव कारणात् तस्य मरणमस्ति परन्तु सः नावगच्छति यत् अपातसुखेनैव स सन्तुष्टो भवति। सः भविष्य-विषये न विचारयति। मनसः विधिनिषेधज्ञानाभावात् पाप-पुण्य-धर्माधर्म-निज-पर-विषयका विचारशक्तिरपि नागच्छति। अत एव प्रकृतिः सर्वदा ज्ञानेन सह मनसः समीपे निवस्तुं बाध्या वर्तते। यथा-मनः यदा बाह्यसौन्दर्ये मुग्धीभूय विषयफलभक्षणाय प्रवर्तते, तदा प्रकृतिः चक्षुषि उपस्थिता भूत्वा संशयमुत्पादयति। तदनन्तरं क्रमशः घ्राणशक्त्या, रसनया च मनः निवर्तयितुं प्रयतते। पुनश्च प्रयोजने सति कण्ठरोधं करोति तदनन्तरं वमनं कृत्वा देहादपाकरोति। शेषावस्थायां रोगः उत्पद्यते। प्रकृतिरेव देहं नीरोगं कर्तुं रोगरूपेण सकलां ग्लानिमपसारयति। अत एव आमातिसार-रक्तपित्त-रक्तार्शः प्रभृतेः प्रथमावस्थायां स्तम्भनं, ज्वरस्य प्रथमावस्थायां कषयपानप्रयोगेण विपरीतः प्रभावो लक्ष्यते। एवस्मादेव कारणात् शास्त्रकारैः प्रकृतेः प्रत्येकं प्रवृत्तिमात्रे एव निर्बाधनस्य विधानं कृतम्। यथा- देहनीरोगार्थं ये मलमूत्रादेः वेगाः आगच्छति। एष वेगः निरुध्यते चेत्तर्हि अशेषव्याधिरुत्पन्नः जायते।

प्रकृतिः सर्वकल्याणमयी वर्तते। 'जीवः कल्याणमार्गं गच्छेत्' इत्येतदर्थं प्रकृतिः विकृतिभिः सह संघर्षं करोति। यदा कासुचिदवस्थासु प्रकृतिः दौर्बल्यवशात् रोगाणां प्रतिरोधं कर्तुं न प्रभवति, तदा दुर्बला सती सा (प्रकृतिः) बाह्यसाहाय्यमपेक्षते। एतादृगवस्थायां प्राणाभिसारो वैद्योऽपि तस्याः प्रकृतेः तादृगवस्थां सम्यगवगम्य प्रार्थनानुकूल्यमौषधं पथ्यञ्च प्रदाय साहाय्यं विदधाति। परं यदा प्रकृतिः स्वात्मरक्षां न चिकीर्षति, देहत्यागञ्च चिकीर्षति, तदा तु कोऽपि वैद्यः तस्याः चिकित्सां कर्तुं न प्रभवति। प्रकृतेरेषा आत्मरक्षायाः प्रवृत्तिः भगवत्प्रदत्ता वर्तते। अरे! ज्ञानदृष्ट्या वयं पश्यामश्चेत्तर्हि मृत्योरस्तित्वमेव नास्ति। एकस्याः अवस्थाया अनन्तरम-परावस्थायां प्राप्तायां सत्यां पूर्वास्था नष्टा जायते। वास्तविकदृष्ट्या पुरुषः जीवो वा अमरो (मृत्युविहीनः) वर्तते। केवलं मरणशीलायाः प्रकृतेः संसर्गेण सः (जीवः) वारं-वारं (भूयो भूयः) मृत्युं प्राप्नोति, प्रकृतेः संसर्गेणैव पुरुषस्य (जीवस्य) जीवनं धन्यं भवति। प्रकृतिरपि पुरुषं प्राप्य कृतार्था जायते। यद्यपि प्रकृतेरस्तित्वं पुरुषस्य कृते एव, पुरुषस्य तृप्तावेव तस्याः तृप्तिर्जायते तथापि सा अकस्मात् स्व-स्वभावं त्यक्तुमसमर्था, अपितु क्रमशः प्रयतमाना भवति। क्रमेऽस्मिन् यदा-कदा सा पुरुषस्य अतिक्रमणमद्वयं यच्छति। अत एव पुरुषः सर्वदा प्रकृत्या स्वाधीनत्वेन जगतः सर्वविधकर्माणि कारयति। एकस्मिन्नेव प्रकृतिभेदेन कर्मभेदेन च नामभेदो जायते। एका एव प्रकृतिः क्रियायाः सामर्थ्यानुसारं पुरुषस्य प्रवृत्तिरूपेण निवृत्तिरूपेण च स्त्रीद्वयं कल्पयति - (1) निवृत्तेरपत्यं ज्ञानं तदधीनवृत्तिसमूहश्च, (2) प्रवृत्तेरपत्यं मनः तदधीनवृत्तिसमूहश्च। एकस्मिन्नेव देहे अपत्यद्वयमिदं निवसति। देहे यदा ज्ञानस्य राज्यं प्रचलति तदा पुरुषस्य कृते नित्य-स्वास्थ्य-सुखानन्दावाप्तिर्जायते अर्थात् सः देहः स्वर्गसुखं लभते। अपरस्मिन् पक्षे यदा मनसः राज्यं प्रचलति तदा पुरुषस्य कृते अनित्य-स्वास्थ्य-सुखानन्दावाप्तिर्जायते अर्थात् सः देहः नरकं समुपाश्रुते दानवलीलाक्षेत्रञ्च जायते।

निवृत्तेरधिपतेः पुरुषस्य परस्परं विरुद्धधर्मि अपत्यद्वयं देवासुरसंग्रामवत् सर्वदा युद्धरतं भवति। यावत्कालपर्यन्तं पुरुषः देहेऽस्मिन् निवृत्तेः संसर्गेण ज्ञानोपरि निर्भरो भूत्वा संसारयात्रां निर्वहति तावत्पर्यन्तं शरीरे मनसि वा कीदृशमपि दुःखं न संस्पृशति। एवञ्च यदा सः (पुरुषः) प्रवृत्तेः संसर्गेण मनः आश्रित्य जगद्-यात्रां निर्वहति तदैव शरीरे मनसि वा नानाविधाधिव्याधीनामुत्पत्तिर्जायते स च पुरुषः मरणपन्थानं गच्छति।

पुनश्च यावत्कालपर्यन्तं मनसि सत्त्वरजस्तमसां साम्यमस्ति तावन्मनसि कोऽपि विकारो नोत्पद्यते। परं यदा सत्त्वरजस्तमसां वैषम्यमुत्पद्यते तदा मनसोऽपि विकारः समुपजायते। अनुकूलावस्थायां समुद्बुधस्थितानि वात-पित्त-कफादीनि देहं रक्षन्ति, विकृतावस्थायाञ्च प्राप्तानि वात-पित्त-कफादीनि देहं विनाशयति।

जीवदेहे-यथाभ्यन्तर-प्रकृतिरस्ति तथैव बहिर्जगत्यपि वात-पित्त-कफमयी प्रकृतिर्विद्यमानास्ति। बाह्यतः वात-पित्त-कफमयेषु महास्त्रोतरूपिषु सागरेषु जंगलेषु च जीवसमूहाः विचरन्ति। जीवसमूहा अपि बहिर्जागतिक-वातपित्तकफमय्याः प्रकृतेः कृपायामेव जीवन्ति। बाह्य-प्रकृतिरपि जीवानां प्रयोजनार्थमेव कल्याणाय ऋतूनानयति तथा तेषु तेषु ऋतुषु बाह्य-प्रकृतये दैहिक-विकार-प्रशमनार्थं प्रभूतानां भिन्नद्रव्यानामुत्पादनं कुर्वती, स्वास्थ्यस्य रक्षां करोति।

उपसंहारः - वयं सर्वे जगन्मातुः सन्तानाः स्मः तथा सा विभिन्नेषु नरेषु विभिन्नरूपे वर्तमानास्ति। विभिन्नास्त्वस्थासु जगन्माता पुरुष-रूपिणात्मना सह मिलित्वा संसार-धर्मस्य तथा कर्तव्याणां निर्वहणं करोति।

Medical Humor



Health Through Alchemy

***Dr Soma Das. **Dr P. Suresh. ***Prof. L.K Dwivedi**

Ayurveda, the science of life and Rasa Shastra, the branch dealing with Mercury (the elixir of life) and other agents, are mainly oriented towards not only maintaining positive health but also curative aspects of many diseases. Thus the chief goal of both Ayurveda and Rasa Shastra is to maintain health i.e to make the body stable in order to accomplish the four Materialistic endeavours viz. Dharma, Artha, Kaam & Moksha.

The scholars of Rasa Shastra were of the opinion that the ultimate objective of life- the Salvation, if achieved after natural course of life is not the perfect salvation and such salvation can be achieved even by quadrupeds.

पिण्डपाते च यो मोक्षः स च मोक्षो निरर्थकः ।
पिण्डे तु पतिते देवि । गर्दभोऽपि विमुच्यते ।
यदि मुक्तिर्भगक्षोभे किं न मुञ्चन्ति गर्धभाः ॥
अजाश्च वृषभाश्चैव किन्न मुक्ता गणाम्बिके ।
तस्मात्संरक्षयेत् पिण्डं रसे चैव रसायने ॥

(रसार्णव 1/9-10)

To attain salvation the scholars considered a stable body and such a stable body can be achieved by use of mercurials.

परमेश्वर तादाभ्यवादिनोऽपि पिण्डस्थैर्ये सर्वमिमता ।
जीवनमुक्तिं सेत्स्यतीत्यास्थाय पिण्डस्थैर्योपायं
पारदादिपदं वेदनीयं रसमेव सङ्गिरन्ते ॥

(रसेश्वर दर्शन)

Earlier the Rasa Shastra was dedicated to mainly transmutation of baser metals to noble metals - the Gold. The word alchemy was derived from earlier Egyptian language or Greek. In Egyptian language the root word is Kam, which means "the black" and in Greek "chyma"-molten metal. The objectives of alchemy, whether it is the opinion of western alchemists or Indian has two facets viz-

- Transmutation of base metal into Gold.
- Transformation of human soul into higher form of being.

न च रसशास्त्रं केवलं धातुपादार्थमेवेति मन्तव्यम् ।
किन्तु देहवेधे द्वारा मुक्तेरेव परमं प्रयोजनत्वात् ।

(रसेश्वर दर्शन)

To lead longer life "Dirghayu" that too in perfect state of health and to attain super human power, have always been an innate human desire in one form or another and for them alchemy was one of the choice in this pursuit.

To achieve longer life, alchemy has brought in use of minerals and metals on one hand and the herbal drugs on the other. In quite a different fashion from that as Ayurveda applies them.

One of the internet WebPages states that occultopedia (alchemy) is an ancient science chiefly concerned with transmutation of metals/ Mercury into Gold.

- With the discovery of a single cure for all diseases.
- With a way to prolong life indefinitely.

The Chinese alchemy associated with Taoist philosophy, also claims the same i.e transmuted gold has the ability to cure diseases and prolong life. According to Chinese alchemy concept-the philosopher's stone acts as medicine which can turn the sick metal into gold and also acts as an elixir of life.

The Taoists of China have evolved concepts of transmutation and same miraculous drugs for prolonging human life and to rejuvenate it both physically and spiritually. In Chinese alchemy the potable gold elixir and cinnabar occupied prime potion.

Alongside some herbo mineral elixirs were conceived and sustained efforts were made towards their preparation. Though the Indian alchemy has explored, the Chinese alchemy because of the interaction through Buddhists, the Indian alchemy has retained its originality. Of almost all materials, mercury only has the prophylactic as well as curative potentials. It has been considered as ambrosia.

रसवीर्यं विपाके च सूतकस्त्वमृतोपमः ।

तेन जन्मजराव्याधीनं हरते सूतकः प्रिये ॥

(रसार्णव 1/43)

This is one of the reasons why the management with Rasa aushadhis has excelled the other two lines of management and this line of treatment has been considered as Daivi.(divine/ mystical).

उत्तमो रसवैधस्तु मध्यमो मूलिकादिभिः ।

अधमः शास्त्रदाहाभ्यामित्थं वैधास्त्रिधामता ॥

(रसेन्द्र सार संग्रह Pg. 6)

Further the Ayurvedic science has recommended drugs (medicaments) for all curable disorders and left the incurable for their fate. It is the Rasashastra, a branch developed from alchemy, that has provided with

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remedies for the incurable ones also.

The body is made up of inorganic elements and out of 117 known elements. 81 elements are present in one or other form in the body. Some of them are essential for physiological formation and their deficiencies will result in pathological state. Their replacement will bring the body back to normal position.

Generally very minute quantities are sufficient to replenish the deficiencies. Hence, the Rasa aushadhis have been recommended in very minute doses. Once the deficiencies have been corrected the patient quickly returns to normal routine life.

अल्प मात्रोपयोगित्वादरूपेण प्रसंगतः ।
क्षिप्रारोग्य दायित्वादोष धेभ्योऽधिको रसः ।

(रस रत्न समुच्चय 28/1)

The scholars of Rasashastra have taken all kinds of precautions in manufacturing of medicines and rendered all materials toxin/ side effect/ adverse effect by subjecting to various pre pharmaceutical processes. Mercury has been subjected to 8/18 samskaras and they believed that mercury after undergoing sequentially through 17 processes would have acquire all the potency necessary for transmutation. At this stage they recommended it to be tested on the base metal and it later turns into gold, it should be used for 18th process heading to its assimilation and revitalization of the body.

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Teratogenesis and Ayurveda Wsr to Gynaecology & Obstetrics

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Abstract:-

Teratology became a great concern from the late 1960's to till date. Epidemiological studies have confirmed that the incidence of these congenital anomalies are much higher than the figures what we are getting today. Ayurveda, most probably, is the first science to document the teratogenic conditions in great length and breadth.

Keywords: Teratology, congenital anomalies, Ayurveda

Teratology is the word derived from Greek word "Teras" which means Monster. The Teratology is the science that deals with the causes, mechanisms and manifestations, developmental deviations of structural and/or functional Nature. Terate and malformations are the words that literally and historically denote to structural abnormalities. Whereas Birth defects and congenital defects are the words refering to most types of developmental abnormalities.

Due to exhaustiveness of the topic we will touch a few points, as going into much details is beyond the purview of the present topic.

Figures for the incidence of congenital abnormalities vary in different parts of the world. In India the incidence is about 25 per 1000 total births. According to Shepard T.H 1986 3-5% of all new borns have a recognizable birth defects and according to Oaklay.G.P 1986 around 20% of infant deaths before age 1 are due to birth defects. Defects in Central nervous system account for about 50% of Malformations

In many a cases the precise cause is not known. In some of the cases there is a clearly established single cause and in others the causes are multi-factorial. Some of the more important aetiological factors have been shown in table No.1.

Table No.1

		James G Wilson	Beckman&Bernt
Bijabhaga	Known Genetic	20%	20-25%
Avayava	Transmission.		
Bija Bhaga	Chromosomal	3-5%	
	Abberations.		
Mithyahara	Environmental	<1%	
vihar	Causes.		
-Do-	Infections.	2-3%	3-5%
-Do-	Maternal Metabolic	1-2 %	4%
	Imbalance.		
-Do-	Drugs & Chemicals	2-3%	<1%
Atma/Daiva	Unknown	65-70%	65-75%

Most of these factors operate during the period of formation of the vital organs of the foetus. The causes, mechanisms and manifestations have been shown in table no-2

Etiology and pathogenesis explained in modern science is as follows : (Table No. 2)

Table No. 2

Causes -----	Mechanisms-----	Manifestations
Action by an agent from the environment on Germ cell/Embryo/Foetus	Reaction within Germ cell / Embryo/foetus	Pathogenesis as one or more of the following
Radiations	Mutations	Cell death
Drugs & chemicals	Chromosomal Non-Dysjunctions	Failed cell integrat
Infection	Mitotic interference	Reduced Biosynth
Extreme Temp.	Altered Nucleic acid	Impeded Morpho-genetic movement
Metabolic/endocrinal imbalances	Lack of precursors	Tissue disruptio
Physical trauma	Altered energy source	Altered differen resulting in final defects
Placental failure	Changed membrane -character	IUD
	Enzymatic inhibition	Malformations
		Growth retard

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Ayurvedic scholars are very well aware of the involvement of genetic factors and VANDHYATWA is one such example which Carak has mentioned in Bijamsa dosa instead of mentioning it in Yonirogas. The description of varta and Putipraja further throws light on genetic locus in causing the deformities in the offspring. While describing Sukra doshas and associated diseases, it has been mentioned in the classics that in Klaibya the progeny of these patients either will be born sick, sterile, short lived and used a specific term VIRUPAM which means teratogenesis.[C.Su.28/18&19]. While explaining the after effects of DOUHRUDI Apamana it has been mentioned that either the foetus will

be lost or born with deformities[VAIRUPYAM]C.Sa4/15, 17,19] Further while describing post maturity it has been mentioned that vata aggravated will either produce a still born baby or produce deformities in the bay.C.Su12/8. While commenting on C, Sa4/30 Cakrapani has explained the term Vikruta as Vinasa and Puti as Deformed limbs.

The modern science says that if the pregnant women smokes heavily it may result in small babies. Similarly moderate alcohol consumption may be detrimental to embryonic development.

The terminology used in Ayurveda to indicate genetic locus have been showed in table No. 3. and the conditions that have been identified by Carak to have a genetic locus have been shown in table No. 4.

Table No.3
Conditions identified by Carak -Carak Sa.4&8;Carak.Ci.30

Apasmara	<i>Epilepsy</i>	Prameha	<i>Diabetes</i>
Andha	<i>Blindness</i>	Pavanendriya	<i>Aspermia</i>
Irshyabhrati	<i>Mixoscopia</i>	Putipraja	<i>Stillborn</i>
Unmata	<i>Insane</i>	Mukha	<i>Dumb</i>
Kilasa	<i>Leucoderma</i>	Minmina	<i>Lisping</i>
Kubja	<i>Humpback</i>	Yonivyapad	<u>Gynaecological diseases</u>
Jada	<i>Dull</i>	Vyanga	<i>Freckled</i>
Kustha	<i>Leprosy</i>	Vamana	<i>Dwarf</i>
Dwirata	<i>Hermaphrodite</i>	Vatiksshanda	<i>Eviration</i>
Durvapu	<i>Physically</i>	Varta	<i>Hermaphrodite</i>
Narashamda	<i>Male sterility</i>	Vandhya	<i>Sterility</i>
Narishanda	<i>Female sterility</i>	Samskarvahi	<i>Anaphrodisiac</i>
Sucimukhi	<i>Pinhole Os</i>	Garbhapata	<i>Abortions</i>
Putraghni	<i>Neonatal deaths</i>		

Table No.4

Cause	Anomalies	ConditionReference
1. Bijabhaga responsible for the development of uterus	Absence /Agensis	VandhyaC.Sa
2. Bijabhaga responsible for production of Ut	-Do-	PutiprajaIbid Stillborn/deformed
3. Bijabhaga responsible for Ut.&second ary sex characters	Absence of Ut.& Secondary Sexual Characters	VartaIbid Trinaputrika
4. Yonipradosa	Delayed conception	May cause (C.Sa.2/7)
5. Sukra/Asrig dosa		Birth defects
6. Atulyagotra		Consanguous marriages

The ancient classics have mentioned certain factors that are responsible not only for conceiving but also for the healthy growth and development as well as the proper delivery of conceptual product the foetus.viz

1. Garbhakara Bavas
 - Sukra
 - Artava
 - Matruja
 - Pitruja
 - Satmyaja
 - Atmaja
 - Rasaja
 - Asaya
2. Availability of Nourishment to foetus through Upasneha and Upasweda
3. Psychological factors
4. Adoption of proper regimen by mother
5. Douhruda[pica]
6. Natural tendencies
7. Proper time
8. Miscellaneous

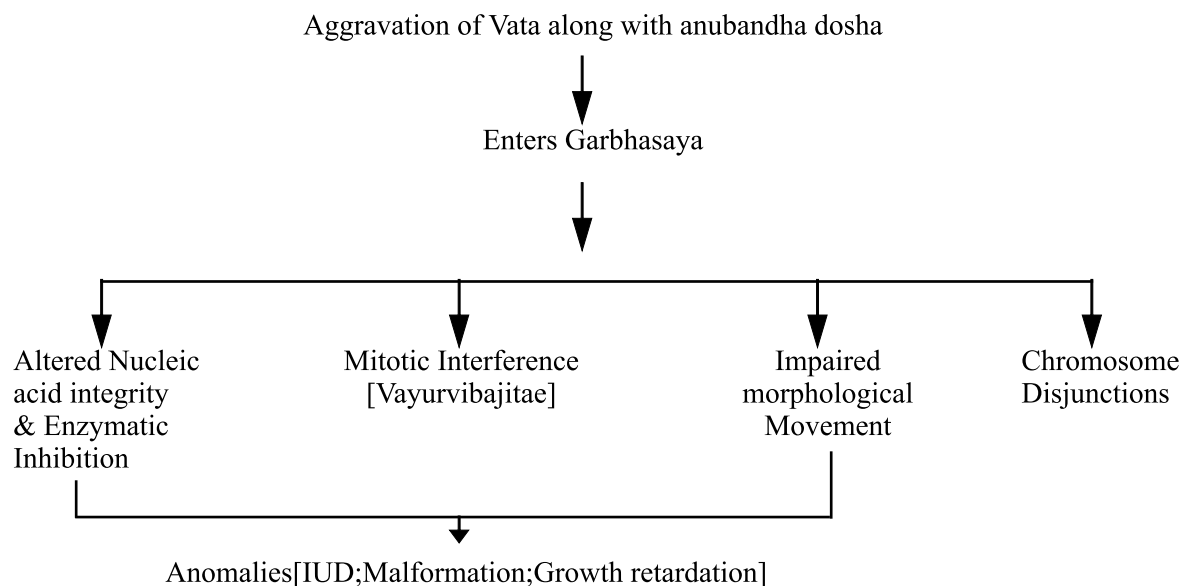
Any abnormalities in these factors will lead to abnormalities including vikruta rupa.

To Summarize the hetus can be classified as follows:-

Mithya ahar	Mithyavihar	Artavadosa	Daiva	Bijadosa	Psychic	asaya
Heavy foods Pungent Alcohol Intoxicants Overeating Malnutrition	Violent acts Riding Exercises Sexual acts in abnormal postures	Hormonal abnormalities	Unknown	Genetic Mutation	Bhita Soka Vi mana Krodha Douhruda	Uteru Position

[C.Su25/40;C.Sa2;C.Sa4/18]

Collectively, the samprapti can be explained as follows:-



The anomalies referred by Carak in context to Gynecology and obstetrics are more or less identical that have been identified and described by modern counter parts. Some are shown in Table No .5

Table No. 5

Structure	Origin	Normal Development	Anomalies	Symptom
Ovary	Yolk sac Genetic -ridge	Cortical develop -ment giving Ova&Theca	Absence Hypoplasia Supernumery	Amenorrhoe Infertility
F.Tubes	Proximal end of M.Ducts	Remain Separate	Absence Closed& Extra ostium	Infertility
Uterus	Middle part of M.ducts	Fusion & Hollowing	Absence Lack of Fusion Hollowing	Menstrual Infertility Recurrent -Abortion Preterm -labour
Upper3/4 Vagina	Lower end of M.Ducts	Form by fusion & Hollowing of M.Ducts	Aplasia Hypoplasia	Rare on its own
Lower1/4 Vagina	Urogenital Sinus	Meets lower M.Bulbs to form Vagina	-Do-	Hydrocolpos Pr.Ammeno Haematocolpos Haematometra
Hymen	Urogenital sinus memb.	Breakdown at coitus	Imperforate	-Do-
Labia Minora	Urethral ridges	Form in the Vestibular region	Anomalies Persistence -closure	Sexual -ambiguity
Labia majora	Labioscrotal folds	Remain Separate	-Do-	-Do-
Clitoris	Genital Tubercle	Remains small	Enlarged	-Do-

[T.B Clin.Gy.by Thankan R]

Thus it is evident that Ayurveda is the first science to identify the birth defects/ teratogenesis and the involvement of genetic factors. Hence to be on safe side and to overcome these problems it has been suggested in Caraka to practise the following. 1. Satmyasewan[wholesome diet] 2. Atulya Gotra, 3. Prasanna mana 4. Upacara. 5. Nidana parivarjana and through genetic counselings, preconceptual and postnatal counseling.

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Gain bone at early age, forget pain in old age

An early age management for osteoporosis

Dr. Pranit Y. Ambulkar

Introduction

When we talk about geriatric problems, osteoporosis is a prime topic. Osteoporosis is loss of bone tissue, resulting in bones that are brittle and liable to fractures. Infection, injury and synovitis can cause localized osteoporosis of adjacent bone. Generalized osteoporosis is common in the elderly and in women it often follows the menopause. It is also a feature of Cushing's syndrome and prolonged steroid therapy.

Many aged patients remain unaware of this underlying demon. Most of the time this problem is brought to notice by a bone fracture occurred due to a simple trauma. Females face osteoporosis earlier than males. In females loss of calcium and minerals begins often at the age of 30, where as in males it occurs after 60. In females it accelerates around the age of 45, as estrogen level falls down at menopause. 30% calcium is lost by the age of 70. Once bone loss begins, in females 8% loss occurs every 10 years, where as in males 3% loss per 10 years occurs.

Osteoporosis leads to too many problems like brittle bones, bone fractures, non union of fractures, pain etc. As in the old age, many therapies are inconvenient for patients, it is advisable to prevent osteoporotic changes right from the early age. Wealth is of no use if one doesn't have good health to enjoy the life. So, a little care for our bone health from young age will be definitely a worth and wise investment for happy life after retirement.

Composition of bone

Bone is a live tissue. It contains following types of cells. Osteoblasts, osteoclasts, osteocytes and osteoprogenitor or mesenchymal cells. Out of which Osteoblasts are with single nucleus. They deposit new bone. Osteoclasts are the giant cells with 15-20 nuclei. They may have up to 100 nuclei. They cause resorption of bone.

About 80% of human skeleton is compact bone and 20% spongy bone. Adult compact bone contains about 75% inorganic and 25% organic materials. (Dry weight.) Compact bone tissue is arranged in units called osteons or Haversian system. Bone contains mainly calcium, magnesium and phosphorus as its inorganic material, in which calcium is the major component.

Calcium

99% of total body calcium (which is 1 Kg) is in bones. Calcium salts give the bone its hardness.

Magnesium

50% of total body magnesium is present in bone. 5% in extra cellular fluid and 45% in cells. Mg behaves like calcium on neuromuscular system.

Phosphorus

80% of total body phosphorus is in the bones. Other phosphorus is intracellular.

Collagen

It is also an important protein content of bone

Bones according to Ayurveda

According to Ayurveda, bone i.e. Asthi is the 5th dhatu in our body. Asthi is so called because it remains for longer time, even after death. Bones decompose at last. Asthi has panchabhautic constitution and it exhibits properties of Prithvi mahabhuta more prominently. Asthi is one of the destinations of Vayu (Vata sthana). The Vayu and Asthi are inversely proportional to each other. That means when Vayu increases in Asthi, Asthi decreases, and vice versa.

Growth & Development of Bones

Bones calcify through the process of ossification. Bone ossification begins at 6th-7th week of intra uterine life. As per length wise growth of bones is concerned, the activity of epiphyseal plate is the only way that the diaphysis can increase in length.

Calcium

99% of total body calcium is in bones. The calcium of the bone is in dynamic equilibrium with the calcium in extra cellular fluid (E.C.F.), i.e. the calcium leaves the bone to enter E.C.F. and at the same time the E.C.F. calcium deposits in the bone resulting in no net loss or gain in the total calcium of bone. This is seen in adults and called as calcium equilibrium. In growing children positive calcium equilibrium is observed. That means, new bone formation is more than the depletion of bone in the remodelling. While in elderly persons, negative calcium balance is observed where bone loss is more than the new bone formation.

Many factors other than calcium play an important role in bone development.

Vitamin C

It is needed for the synthesis of main bone protein collagen, and also for the differentiation of osteoblasts into osteocytes.

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Vitamin K & Vitamin B12

These are also needed for protein synthesis.

Vitamin A

This stimulates activity of osteoblasts.

Three hormones take part in regulation of bone formation. *Vitamin D* (De hydroxy cholecalciferol) Small intestine and bone are the principal target organs for vitamin D.

Para thyroid hormone (PTH)

It acts on bones, kidney, and intestine. It induces high serum calcium level and decreases calcium from bones.

Calcitonin

It takes part in calcium metabolism. Its exact role is not known in humans.

Nutrition of bones according to Ayurveda

Bone, as per its Panchabhautic constitution mainly gets its body mass from the nutrients which are prominently Prithvi mahabhautic in constitution. According to Uttarottar dhatu poshan nyaya (nutrition of successive dhatu) Asthi gets its nutrition from majja. Majja can be co-related with red and yellow bone marrow.

Need of early age bone care

As mentioned earlier, positive calcium balance is observed in young age, calcium equilibrium is observed in middle age and negative calcium balance is observed in old age. That means if one wants to buildup a good health of bones, the young age is the most ideal period. Efforts in middle age may also be fruitful. But as old age is a degenerative stage, even vigorous efforts to boost body components may not prove encouraging.

In reference to the Rasayana i.e. rejuvenating treatment, Ayurvedic physicians have clearly advised to have Rasayana at young age or middle age by the sentence, 'Poorve Vayasi Madhhye Wa...'. Though the target is to prevent disorders at geriatric age, the treatment is prescribed at the developing age of the human body.

If we consider the stage of Doshas at different age groups, in young age Kafa Dosha is prominent which is responsible for cumulative and integrative action. In middle age pitta Dosha is prominent whereas in old age Vata Dosha is prominent. As Vata is inversely proportional to the Asthi, efforts to treat osteoporosis in older age are less effective. On the other hand if we follow the principles of Rasayana and start Rasayana for bones at young age or middle age, it will be beneficial life long. Not only for bones, but also this theory is applicable for all dhatus and whole body. Constructive work is always recommended in constructive age, which is young age.

So, attention towards early age management of geriatric problems like osteoporosis is essential. Early

age bone health care is not only important from the point of view of prevention of osteoporosis, but also it is important in primary growth and development of child. Because a few things are irreversible and that's why they should be taken care when formation is going on. Like-

a) Teeth

Like bones, calcium is the main constituent of teeth. According to Ayurveda, teeth are derived from bones and called as Updhatu of it. At the time of dental development, if child lacks in nutrients, minerals or the factors which make the nutrients available for development, the child will not get healthy teeth. As the calcium in teeth can not be mobilized, after the completion of development, these teeth remain weak for life time. Dental caries, early teeth loss and related complications are common with these sort of people in adulthood. If proper care of bone health is taken in childhood, it will serve for the healthy development of its Upadhatu i.e. teeth for life long.

b) Height

Height of a person is completely dependant on the lengthwise growth of long bones. The activity of epiphysial plate is the only way that the diaphysis can increase in length. Any damage to the epiphysial plate in a form of trauma, infection, etc may hamper the growth of that particular bone. Malnutrition, insufficient supply of nutrients required for bone development can result in short height. Also obesity can be a hurdle for height growth in children. Because, Tissue like adipose tissue can convert androgens to estrogens. As ultimately the sex steroid, especially estrogen in both sexes shuts down growth at epiphysial plate, no further bone elongation occurs. So bone growth remains stunted in children. Hence proper attention towards the development of bones can save one from lifetime frustration of stunted height and related problems.

How can one take care of bones?

In order to gain a good bone health following points plays an important role.

- Sufficient intake of nutrients
- Absorption of nutrients
- Transportation of nutrition to desired site
- Appropriate formation of the target tissue / dhatu.
- Accessory or accompanying components like Prakriti, age etc.

a) Nutrients for Asthi (bones)

According to Samya-Vaishamya theory of Ayurveda, drugs having similar constitutions as Asthi are useful for the nutrition of Asthi. For example, calcium rich diet like milk and milk products, eggs, fish, green leafy vegetables

like spinach, amaranth; cereals, millets, some fruits like custard apple (Sitaphal) provide good calcium supplement. An additional source of calcium is drinking water which may provide up to 200 mg/day. Also the plant drugs having their core bony hard are used to strengthen the bones. For example, khadir (catechu), Babbul, Laksha, etc. Some specific drugs are also used, like Asthishrinkhla. Drugs rich in calcium may be occasionally used to compensate deficiency.

b) Jatharagni & Digestion of food

Digestion of food plays an important role in nutrition of bones of one and all. Food is the main source of calcium and other essential nutrients. According to the concept of Ayurveda, Agni is the digestive power in the body. It is the factor responsible for any transformation in the body. Jatharagni digests the food and makes it available for absorption in body. Unless Agni is functioning properly, whatever nutrients we eat will not be beneficial for the body completely. The jatharagni can be compared with the cumulative function of gastric juices, gastric acidity, bile and digestive enzymes together.

The function of Agni can be illustrated as follows, Hunger and thirst are caused by Agni at meal time. When person is hungry, gastric juices are secreted in more quantity. For absorption of calcium gastric acidity is of great help. Calcitonin decreases serum calcium and prevents bone resorption. Calcitonin secretion is stimulated when there is secretion of gastro-intestinal hormones, gastrin and cholecystokinin, pancreozymin which are secreted after meals. In this period calcium absorption from the gut rises, this is well established. This way serum calcium does not become dangerously high and extra calcium in serum coming from food is deposited on the bones. In addition glucagons also stimulate it.

The custom of Tambul bhakshanam in India can also be justified on the same ground as, 'Tambul bhakshanam' is advised after meals. Tmbul contains lime, catechu and betel leaves. This provides good calcium supplement and nutrition to bones. Also the increased absorption of calcium at that particular time makes this calcium available for bone nutrition. Also it helps to improve the digestion. Appetizers like Marich, Jiraka, Dadimamla, etc. and other spices are also useful as they stimulate hunger. So absorption of calcium, iron etc. is enhanced.

c) Grahani & absorption of nutrients

Native place of Agni or pitta is 'grahani' which is anatomically compared with duodenum. The ideal functioning of grahani is said to be responsible for good digestion of food. Also it functions for differentiation of nutrients and waste products, absorption of nutrients,

formation of urine and faeces etc.

The importance of Grahani can be explained in following manner. Daily requirement of calcium is 0.8 gm/day in adults. It may be less than even 0.5 gm/day. If the dietary calcium intake is low, the absorption of calcium by intestine becomes very avid. Whereas where the dietary intake of calcium is high, the intestinal calcium absorption becomes poor. Thus the intestine regulates the calcium by adjusting the absorption of calcium. This adjustment of absorption is made possible by changing the availability of 1, 25 dehydroxy cholecalciferol (a vitamin D derivative). Active transport against concentration gradient depends on 1, 25 dehydroxy cholecalciferol which occurs in the duodenum. Passive diffusion occurs in small intestine in small amounts i.e. nearly 15%. Where 1, 25 dehydroxyl cholecalciferol is low, calcium absorption also decreases.

Total calcium we get is from dietary calcium and calcium from G.I. juices. In this way the Agni and grahani play a main role in nutrition of bones. Thus an efficient digestive system leads to good nourishment. Drugs like Chitrak, Musta, Erandkarkati (papaya) are well known to improve digestion.

d) Bhrajakagni & Vitamin D

Another form of Agni that regulates the bone formation is Bhrajakagni. This can be explained as the digestive power that digests the nutrients from skin and make it available for body. It also illustrates the skin colour. Vit. D is formed under skin in presence of U.V. rays in sunlight. Vit. D₃ irradiated dehydro cholesterol. Small intestine and bones are the principal target organs. So, Bhrajakagni should be proper for adequate formation of vitamin D. Also enough exposure to the sunlight is essential. Massage with oil and then fomentation with steam or warm water is also a good exercise to improve the Bhrajakagni. Food material like liver, egg yolk, butter, cheese, milk and other milk products, fish, fish liver oil are consumed as vitamin D supplement.

e) Dhatwagni & formation of target

Rasa (lymph/serum), Rakta (blood), Mamsa (flesh), Meda (fat), Asthi (bone), Majja (marrow), Shukra (semen) are the 7 dhatus that constitute the body. Nutrient material from the digested food is separated in grahani and picked up in the circulatory system. Saptadhatwagni works for digestion of useful components of digested food for the formation of respective dhatu. Asthi dhatwagni digests nutrients for the nourishment of bones.

In blood calcium occurs in serum. On average serum calcium level is 10 mg/ 100 ml. about half of this i.e. 5 mg/100 ml occurs in ionized form. This is the active form. Of the rest 50%, most i.e. about 4 mg/100 ml

bounds with the serum protein. The rest 1 mg/100 ml occurs in complex with citrate and phosphate. The combined amount of complex calcium and ionized calcium is the ultra filterable calcium of serum. Also it is called diffusible fraction.

It is not important what level of calcium is in the serum, but the most important thing is its usable fraction and the dhatwagni that makes it available for use in body. For example, in condition of severe protein malnutrition, protein bound calcium decreases but ionized calcium remains normal. As a result, total serum calcium decreases but patient doesn't suffer from calcium deficiency syndrome. On the other hand, when blood pH increases protein bound fraction of calcium in serum increases. Hence in alkalosis though total serum calcium level remains within normal limits, patient may suffer from tetany, the calcium deficiency symptom. In this way normal functioning of dhatwagni is important for appropriate use of available nutrients.

As the dhatwagni is responsible for the utilization of available nutrition from circulation for the nutrition of specific dhatu, it is also important to maintain dhatwagni in proper function. As the jatharagni is the governing Agni, maintenance of jathragni serves for welfare of all other Agni in body. Also specific medicines are used for boosting of specific Dhatwagni.

Treatment of Asthisaushirya (osteoporosis)

As the precautions described earlier, the treatment can also be divided into various categories as follows.

a)Nutrition: All essential nutrient elements as described earlier should be included in diet in adequate quantity. Calcium containing drugs like Prawal panchamrit, Bhasma of Kukkutand twak (egg shell), Shankha, Shukti, Varatika, Mukta (pearl), Prawal (coral), and Ajaasthi should be used. Even adequate exposure to sunlight is necessary to get vitamin D. In addition to that, Rasayana drugs like Chyavanprash, Brahma Rasayana, Shilajatu Rasayana, Agastya Haritaki show good results.

b)Digestion: As digestion plays an important role, proper attention is needed towards this. Rather this issue should be considered at first, because improper digestion is the root cause of most of the diseases. Indigestion results into 'Aam' that is responsible for Srotorodh- a sort of obstruction in the systemic functions of body is also a product of improper digestion. Aam pachan and dipan drugs like Chitrak Haritaki, Hingwashtak churna, Lavanbhaskar churna, Jeerakadyarishta should be taken for that.

c)Dhatwagni: As the amount of nutrients like calcium is not required in much quantity, on the contrary over intake of calcium retards its absorption through gut. Hence drugs modifying the dhatwagni to improve absorption and deposition of calcium should be used. Drugs like Khadir Saar, Babul, Laksha, don't contain much significant chemical constituent similar to bone, but it probably works by improving the dhatwagni for bones. Other drugs modifying Dhatwagni are Suvarna malini vasant, Madhumalini vasant, Aabha guggul, Lakshadi guggul, Abhrak bhasma etc.

d)Exercise: Proper exercise certainly improves bone health. Bones undergoing stress are remodelled as a tough one. Exercise like jogging, weight lifting, sit ups and other weight bearing exercises can help a lot.

e)Snehana: As Asthi and Vayu are in inverse proportion, use of Sneha like oils, ghee, vasa, majja are useful to reduce hollowness of bones. Snehana in form of Snehabasti, Tikta ksheer basti, Sidhha Ghrit basti, external application, and internal consumption is useful. Tiktak ghrit, Mahatiktak ghrit are useful. Swedana (fomentation) followed by Snehana is also useful. Panchakarma also shows good results.

f)Menopausal treatment: In case of females, special attention should be given. Because hormonal imbalance at menopause is responsible for osteoporosis. Treatment for menopausal syndrome must be followed along with above mentioned things. Also regular check up is advisable to rule out progress of osteoporosis.



"You need to include more calcium in your diet."



Vasudhaiva Kutumbakam

Swami Swarupananda

The basis of all knowledge depends on calmness of the mind. The world that we witness has so many things around which easily divert the mind from our aim. The goal of human life is to achieve the ultimate serenity the true peace that does not originate from materialism. The search for this peace absolute, bliss absolute leads us to the absolute Truth which has been narrated in the scriptures as Brahman or Atman and one finds that to be none other than one's own Self; that is the Consciousness, that is the Absolute, that is the God. In the Upanishads we find verses telling about Brahman. It is the Upanishads which actually addressed for first time, the basic questions of human mind and lead human being to know the Supreme. Vedanta or the Upanishads are the crest of Vedas or the essence of Vedas, wherein the knowledge culminates at its peak raising a human being to a divine one.

In this pursuit of tranquility we confront with the outer world. Hence are born the different religions, different dogmas. Civilizations evolve, to express the unmanifested. Rules are made, rulers start ruling their reign, but actually a spiritual seeker wants to know the Ultimate, which has been narrated in so many different ways represented by different philosophic schools. Also every school proclaiming that they are the ultimate and being an ignorant layman generally one gets lost to find the way leading us to the realization of the “existence, knowledge, and bliss absolute”. In this vast world of different doctrines and proclamations it is myself who gets confused; and in our heart arises question, “whom to follow?”

Believers of Prana (vital force) say that Prana (vital force) is the Truth Absolute, believers of Karma say Karma is the Truth Absolute, believers of the sky say sky is the Truth Absolute. But the Wise person is satisfied, does not worry because he sees everything in himself and himself in everything.

The knowers of the elements call elements to be the reality that is the cause of the world. The Vedic scholars ascribe reality to the Vedas, while the sacrificers ascribe this to the sacrifices. Those acquainted with the enjoyer consider it to be reality, where as those conversant with

enjoyable things consider them to be so. Some say that reality is constituted by twenty-five principles, while others say of twenty-six. Some say that it consists of thirty one categories, while according to others they are infinite. Adepts in human dealings say that the people (that is to say, people's pleasures) are real things. People conversant with stages of life hold those to be reality. The grammarians hold the view that words belonging to the masculine, feminine, and neuter genders are the reality; while others know reality to be constituted by the higher and lower.

People conversant with creation call creation to be reality. The knowers of dissolution call it dissolution. The knowers of subsistence call it subsistence. All these ideas are for ever imagined on the Self...: Thus said the Upanishads.

The inquisitiveness in our heart leads us to search for “Truth” and we search for a person who knows that “Truth” and does not just merely deliver the philosophic view. And when in this ocean of diversity we desperately want liberation from getting lost then we seek refuge of an enlightened person, who is the manifested form of truth; who may show us the path to freedom. And the scriptures say

“Ma bhaista vidvan taba n'asty'apayah
samsara-sindhos tarane'asty'apayah
yen'aiva yata yatayo'asya param
tam eva margam taba nirdisami” :-
(Vivekachudamani; verse-43)

“O the prudent one, do not fear. For you there is no danger. There is a way to cross the ocean of worldly life. I shall reveal to you that very method by which sages have reached other shore.”

The method of Vedanta is to hear about the Brahman then reflecting and then meditating, there after absorption in Brahman. Hearing (sravan) means properly listening to the instruction by the Guru about the oneness of the individual self and the Brahman. Reflecting (mananam) means thinking of the words thus taught by the Guru and to raise the conviction and remove all the wrong and contrary notions about the oneness of self and Brahman.

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And meditating (nididhyashyan) means constantly thinking about Brahman, constantly dwelling in the stream of ideas of nondual Brahman.

Thus the seeker with the urge to know the supreme goes to the Master who is well versed in Upanishads and is pure, sacred and immersed in the divine bliss of Brahman and pays his shraddha to the feet of his master. The master then narrates the Knowledge that annihilates all the bondages, all boundaries all the ignorance and describes the oneness of the individual self with the Brahman. After deep and continuous contemplation of the Brahman by the grace of Guru the disciple sinks in the depths of homogeneous identity of oneness and is absorbed in Brahman. Losing the small identity of limited self one then wanders in the realm of infinite bliss and finds the actual identity of his self. Being one with the universe, one then becomes a lover; finding the true love, finding everything in his self and his self in everything; all the separate identities get lost, mixed, mingled like a wave returning to its true identity of ocean, becoming the ocean itself.

This is the path of Vedanta; a place, a platform where everybody has their own room. The Advaita Vedanta does not discard any sect or any opinion or any dogma rather it pays appropriate tribute to each step of the stair to the peak. Vedanta believes in acceptance, not tolerance. The Advaita Vedanta or the non dualism speaks of unity, oneness where all duality ends, all the differences of cast, creed, sect, dogmas, doctrines every thing vanishes. And here one finds the true harmony. Hence follows the divine fragrance of love; and in this ocean of divinity every one takes a dip, everyone finds a place of their own, every heart is completely fulfilled with divine joy and bliss. It is then; the human being finds the true meaning of life.

Religions and their scriptures are meant to be realized and man in whom the truth has taken live shape is the light houses of this human civilization. Advaita Vedanta not only reforms but revolutionizes. The International Vedanta Society is a living demonstration of this; bringing in mass movement where people think for each other, work for each other and the difference vanishes in the unbounding flame of divine love of Bhagavan.

To Contributors :-

Contributions to “Amrit Sanchar” are requested to be made in the following format.

- The article should be authentic & not published earlier.
- The contributed material should be related preferably to Ayurveda with new researches/theories.
- The Main title, indicative of the content & references should be in brief.
- Article can be sent on CD with font & two printed hard copies or by e-mail to the editor.
- Publication will be made on the basis of the recommendation of editorial board.

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Hypertension and Abhyanga

Dr. Pulak Kanti Kar

The world is full of tension. Now a days every body is becoming tensed due to daily “wear & tear.” Actually the competition everywhere is the main source of tension because only the fittest will survive. To keep us in the track of the fittest, our hearts also have to share this tension and we have to pay for it. The tension borne by the heart is Hypertension.

Now a days Hypertension is one of the leading causes of mortality and morbidity throughout the world and is giving rise to a wide variety of cardio vascular diseases. Literally Hypertension may be defined, as elevation of either systolic or diastolic blood pressure. Generally the limit counted for this purpose is 120 ± 20 for systolic pressure and 80 ± 10 for diastolic pressure.

Thresholds for diagnosis of Hypertension related conditions according to Joint National Commission (JNC) are shown below¹.

Term	Systolic blood Pressure (mmHg)	Diastolic blood Pressure(mmHg)
Normal blood pressure	<120	<80
Pre hyper tension	120-139	80-89
Stage I hyper tension	140-159	90-99
Stage II hyper tension	≥ 160	≥ 100

Among the hypertensive patients about 20% show their BP reading higher in doctor's chamber or hospital than those measured in other settings. They are called 'White coat hypertensives'². Actually they all will eventually become sustained hypertensives. They have to modify their lifestyle.

Only 10-15% of all cases of hypertension have any detectable cause behind it. This is called Secondary hypertension. The rest have no such established cause and is called Essential or Idiopathic or Primary hypertension. The normal pressure is the out come of cardiac movement. The elasticity and distensibility of the arteries and arterioles are governing this pressure. If elasticity of arteries is lost (in case of arteriosclerosis), the systolic pressure is increased where as increased resistance due to atherosclerosis is the cause of increased diastolic pressure³.

Besides these two factors there are again two causes to produce hypertension⁴.

1.Nervous cause: External or internal stimulus stimulates vasomotor center, the sympathetic fibers cause vasoconstriction leading to Hypertension. This Sympathetic nerve again stimulates Adrenal medulla to secrete catecholamine, which also induces vaso constriction.

2.Hormonal cause: ACTH from Pituitary acts on Adrenal cortex to secrete corticosteroids, which is responsible for vasoconstriction. ADH from posterior pituitary reduces the excretion of urine causing retention of salt and water. This again increases blood volume leading to hypertension.

In diminished afferent arterial perfusion of kidney, Renin is released from J.G.A. (Juxta Glomerular Apparatus). It then catalyses Angiotensin (vaso constrictor) and causes the release of Aldosterone from Adrenal cortex, which is responsible for salt and water retention.

causes of secondary hypertension are⁵:

1. Renal disease especially renal ischaemia.
 2. Tumour of Adrenal medulla (Pheochromocytoma).
 3. Hyper function of Adrenal cortex (excessive corticosteroid and aldosterone secretion).
 4. Toxemia of pregnancy.
 5. Increased blood viscosity (eg. Polycythemia) etc.
- Viscosity means stickiness of the fluid. If viscosity of blood is high, then its flow will be slow. As a result heart has to pump more forcefully to eject out the blood.

Hypertension may be manifested with fullness of head, throbbing headache, giddiness and palpitation or without any symptoms.

'Abhyanga', the massage therapy is a good therapeutic procedure for both the primary and secondary types of hypertension. All the Ayurvedic Acharyas have accepted the efficacy of Abhyanga to restore a good health as well as to fight against diseases. Abhyanga, by direct mechanical effect or by reflex effect acts on blood vessel to reduce hypertension. Not only that Samvahana (light stroke efflurage) has also a good relaxant effect, which reduces stress, one of the prime cause of the disease. It should also be kept in mind that sometimes Hypertension needs other systemic medicaments also.

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Relaxation: It is very beneficial to counteract the mental emotional status. If Abhyanga is done with some fragrant (Sugandha) oil like chandanadi taila, the effect will be much more. Mridu Samvahana, hasta-padatala Abhyanga are of great value for relaxation. A slow rhythmic continuous samvahana with light strokes can induce tranquility. It is seen that in neck and back, movements towards caudal direction (Anuloma gati) is more relaxing to the Nervous System⁶. Gentle Abhyanga on head of the patient in sitting position has also an excellent relaxing power. We may also use Shirodhara; Shirovasti etc for this purpose.

Lymphatic massage increases the level of serotonin⁷. Serotonin is important to combat depression, schizophrenia, anxiety, irritability etc. Abhyanga, Udvartana and Samvahana increase lymphatic movement. Lymph contains a high amount of tryptophan which turns back into blood by Abhyanga. This tryptophan is responsible for producing Serotonin and Melatonin in pineal body⁸. Melatonin decreases Pituitary, adrenal activity and induces sleep. As the pituitary and adrenal activity is reduced, their feed back control to vaso constriction is also reduced.

Mechanical effect on blood vessels:

In the blood circulatory system, the arterial blood flows by action of cardiac pump. After traveling some area through the circulatory path this pressure comes to more or less 10mm of Hg at venous end. Yet this venous blood may complete its cycle due to continuous pushing of the arterial flow and due to the presence of one-sided valve. As a result, a good amount of nutrients, amino acids, enzymes, thryptofan etc escape from the capillaries and cannot return to the main stream.

If Udvartana, Utsadana, Udgharshana or Samvahanadi procedures are performed towards the heart, a good venous return may be possible. Increasing venous return creates space for flowing more arterial blood to that region. As a result, a good circulation is restored by this procedure. In secondary hypertension where there is resistance along the arteries a good blood flow in turn reduces the high blood pressure. Abhyantara Snehapana followed by Sodhana Karma may also have some specific role to handle this hurdle. Hypothetically it is possible because clinically it is seen. Some studies should be done to establish this fact.

Small arteries are affected by hyaline causing narrowing of the arterioles which is a cause of increased diastolic pressure. Blood plasma enters under the endothelium generally accompanied by protein deposition and a gradual conversion to collagen. Muscle layer is replaced by hyaline causing hyaline arteriolosclerosis. The lumen becomes narrow and causes ischemia as an important complication. It is seen especially in the kidney.

Abhyangadi procedures help blood to flow through these arterioles, which in turn lowers the resistance. If kidney is affected due to ischaemia, a backpressure to the heart is obvious. Proper Abhyanga increases circulation to relieve ischemia and backpressure. Mridu Udvartana (light effleurage) over kidney indicated for lymph drainage increases the local circulation and eliminates the fluid rapidly. To perform it, physician should stand on the opposite side of the affected kidney. Then one hand should be placed below the ribcage and other hand should be placed over affected loin (lateral border of abdomen). Then mild compression should be given to do effleurage movement. This procedure may also be done by putting one palm over lateral border of abdomen facing umbilicus and other palm just below the ribcage on the backside⁹. When patient breathes deeply the kidney should be pressed between two palms. The Abhyanga over abdomen, kidney and colon eliminates toxins and helps diuretic function¹⁰. So in pregnancy if Abhyanga is performed routinely it will reduce toxemia, the cause of hypertension, as well as pain, strain etc.

Abhyanga to combat Vasoconstriction:

Vasoconstriction may be due to over stimulation of sympathetic nervous system as well as chemical and hormonal factors. Over production of hormones due to malfunction of Pituitary, mal function of adrenal gland itself (Cushing's syndrome, Conn's Syndrome) etc can cause Vasoconstriction; as already stated. In these cases Abhyanga may work by relaxation therapy, though the benefits are limited. Production of epinephrine, norepinephrine is reduced by relaxation that lessens sympathetic influences on the involuntary muscles. As a result Vaso constriction of the arterioles are reduced.

Abhyanga and blood viscosity:

Fall in blood viscosity by massage is seen in Research work¹¹. The probable causes of reducing blood viscosity are:

1. Increased lymphatic drainage, which opens into blood stream causing haemodilution. Samvahana, Udvartana and Abhyanga increase lymphatic drainage.
2. Abhyanga, Mardana, Unmardana cause mechanical manipulation of muscles. So the micro vessels of those places are decongested. As a result stagnated Plasma fluid is reintroduced into circulation.
3. Haemodilution may be the result of reduced sympathetic tone, which is done by Abhyanga¹². As the smooth muscles of blood vessels relax, blood flow is increased.

Though blood volume is increased but it does not increase blood pressure because massage has also a diuretic effect. It eliminates extra water as well as toxins through urine or stool.

Abhyanga as a whole to reduce blood Pressure:

Abhyanga reduces both systolic and diastolic pressure; it is our daily experience. "Some researchers report a decrease in both Systolic and Diastolic pressure following massage treatment carried out on reflex areas like the occiput, upper neck, shoulders and arms. Bradycardia and a decrease in blood pressure has also been recorded following massage to the mid thoracic region of the back and also to the thorax."¹³ So we can apply abhyanga over these areas. Shiroabhyanga is also an important tool to treat hypertension. A report showed that both systolic and diastolic pressures were reduced after relaxation of skeletal muscles¹⁴.

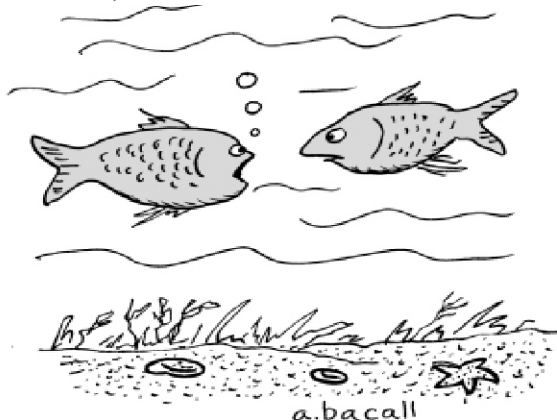
Hypertension may lead to left ventricular failure, arterial degeneration (atheroma), albuminuria, renal failure, retinal bleeding, papilloedema, cerebral thrombosis or haemorrhage etc that are very dangerous to mankind. If abhyanga is applied properly to the hypertensive patients regularly considering habitat (Desha), season (Ritu), built (Prakriti), disease (Vyadhi) etc, a time will come when patients don't have to take any medicine having lots of side effects. Not only that if the healthy individuals also do abhyanga regularly the mortality and morbidity rate due to cardiovascular diseases will become very low.

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"I'm sure if I moved to a fresh water environment, my hypertension would abate."



Vaastu and Health

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Introduction

Ayurveda has originated for the achievement of sound health. So, it includes all the principles which play any type of role in the achievement of health. As health is multifactorial so, it is decided by all the factors with which a person is going to interact from conception till death.

A very important principle of Ayurveda is karana dravya which are essential for the manifestation of Universe. Panchamahabhuta provide basic structure while mana and atma are responsible for consciousness. Disha or direction is important factor for the proper orientation. Kala or time is essential for change by which all the creation of Universe is going on in a cyclic manner and maintained. Disha or direction is the basic principle beneath concept of vaastu. A person can not escape disha and kala. Therefore a person continuously interacts with direction. This interaction may result in various effects which are harmful or beneficial depends upon orientation. A proper or correct orientation is essential for the absolute results. Therefore, importance of orientation is described at various places in Ayurveda related with health preservation, restoration and treatment.

Vaastu is only one aspect of orientation in which a person spends most of his time. Basically it is the art to utilize the various forms of energy present in the Universe to its maximum extent with special reference to positive effects. The effects of vaastu are multi-dimensional and health is one of those. In this way health is definitely affected by it. Therefore, vaastu must be planned in this way; it gives maximum benefits for the residents.

CONCEPT OF VAASTU SHASTRA AND ITS RELATION WITH HEALTH: In literal terms, vaastu means 'to dwell' or 'to exist' and shastra means science. There are two words associated with this science - vastu and vaastu. Vastu means pure, subtle energy and vaastu means embodied material energy. When vastu or subtle energy goes into vibration of its own, many objects of nature such as buildings, temples, idols, etc. come into being. These material forms are called vaastu. Today, vaastu is commonly used to denote buildings. So, the meaning of vaastu is dwelling, which is the home for god and humans. Vaastu shastra is based on various energies that come from atmosphere like solar energy from sun, cosmic energy, lunar energy, thermal energy, magnetic energy, light energy, wind energy, etc. Vaastu Shastra, also known as the Indian geomancy science, is the most authentic art of architecture which unifies the astrology, astronomy and art. It originated about 8000 years ago, since then our ancient Indian sages and

scholars were practising this art of direction which evolves the application of some basic code of conduct while construction of any building or house. It is also known as ancient mystic science for designing and building. This art helps in making a congenial dwelling place which works in a scientific way in order to take the advantage of the benefits bestowed by the nature. Vaastu is a mystic science or art which has its own power and effects. It uses a few basic traditional norms of direction which can be laid down for construction, selection, designing and for everything in this world.

Vaastu is a part of Vedas as it originates in the Sthapatya Veda, a part of the Atharva Veda. India is considered the mother of Vaastu as the ancient saints have formulated various principles of it. As it was written nearly thousand years ago, the sages kept in their minds the results of sunlight and energy and stabilizing all the nature's five elements in such a way to get the maximum advantage out of it. Vastu Shastra is a science of directions and is a study that acquires an entire command over the cognition of directions. In fact, there are actually eight directions namely, northeast, north, southeast, east, southwest, south, northwest and west. It is entirely an Indian science of architecture and space and how environments and spaces are created supporting the spiritual and physical prosperity and health. This had evolved in India during the Vedic times and the concepts of Vaastu Shastra were transmitted to South East Asia, Tibet and ultimately to Japan and China where the developmental base of Feng-shui originated.

Vaastu-shastra is based on following principles-

1. Panchamahabhuta and tanmatra
 2. Disha or direction
 3. Position of sun and earth or time
- Following steps must be taken in the construction of ideal house-
1. Selection of construction site or plot.
 2. Position of vaastu purush and energy fields.
 3. Planning of construction according to vaastu purush mandal.
 4. Planning of construction of each room or components of house.
 5. Correction of vaastu dosha if remained.

As is previously stated that vaastu is the science related with the planning and construction of any type of dwelling. Here emphasis is given on the vaastu of residential house. Vaastu effects all the factors related with human being and health is one of them. Here the consideration is given on health aspect only. In this reference following points are noticeable-

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- If any defect related with ishan kon remains, all types of miseries may persist.
- Obstruction in east is wearisome for the owner and manifested with troubles related with health and reputation.
- Defect in agneya kon results in continuation of health problems.
- Elevation in south is related with sound health.
- Any type of deep pit (it may be underground water tank or soak pit) should not exist at the entrance of main gate. Otherwise, it may result with manifestation of epilepsy or anxiety in female candidates.
- Main gate at eastern ishan is related with sound health.
- If main gate is constructed at southern nairitya, female candidates are always in tense condition and suffer with nervous disorders.
- If septic tank is situated at west or nairitya, gastric troubles may result.
- Head faced towards south at sleeping time results in achievement of long life.
- Indian fig tree (pakar) at south results in manifestation of diseases.
- A big fig tree (gular) at north results in manifestation of eye diseases.
- Water exit in east face house should be at east. It is essential for the sound health of male candidates.
- If eastern side is elevated with reference to other direction in east face house, children will be morbid or mentally retarded.
- If house is constructed without boundary wall (i.e., there is no open space towards east and north), the family will be deficient with male child or if child is born, she may be disabled.
- If there is high building towards north side in ishan faced house, female candidates are always sick or die very early.
- Toilet situated in ishan may result with manifestation of various diseases.
- If northern area is elevated in north faced house, female candidates are always sick.
- If water exit is situated towards west side in west faced house, chronic diseases will manifest.
- If nairitya kona of all rooms and courtyard is depressed in nairitya faced house, that will be dangerous to life or dangerous diseases will manifest.
- If boundary wall or main-gate is situated at southern nairitya or western nairitya in nairitya faced house, accident or suicide may result. These places are enemy places and results in heart attack, surgery or untimely death.
- Water exit should be towards north in south faced house. It gives positive impact on health of female candidates. If it is not possible water exit can also be made towards east. It gives positive impact on health of male candidates.
- If main-gate is situated at nairitya in south faced house, there is danger of chronic diseases or untimely death.
- If main-gate is situated at southern agneya in agneya faced house, there is manifestation of dangerous diseases.

- Presence of slough in front of main-gate is dwar-vedha and is always cause of grief.
- Presence of well in front of main-gate is dwar-vedha and may be results in epilepsy.
- Cooking should be carried with east face. It gives positive impact on the health of residents.
- Storage of worthless articles should not be done at north, east, ishan and vayavya. It results with increase of mental restlessness.
- Head should not be faced towards north during sleeping. It may leads in difficulty in sleeping or worthless dreaming.
- Bedroom at east or north is harmful for health.
- House having road at east or north side, if have toilet at ishan is very dangerous and results in mental and family conflicts as well as incurable diseases.
- Septic tank in agneya is harmful for health.
- Septic tank in west results in mental restlessness.
- Well or pit in south is cause of untimely death of female candidates.
- Well or pit in southern agneya or southern nairitya is harmful for the health of female candidates.
- Well or pit in west is harmful for the health of male candidates.
- Well or pit in western nairitya results with occurrence of diseases in male candidates.

DISCUSSION AND CONCLUSION: Ayurveda includes all the principles which are essential or accessory in health maintenance and treatment of diseases. Karana dravya is a very important concept of Ayurveda among those disha (direction) and kala (time) are universal karana dravya. Basically, these two are basis of vastu shastra. Proper orientation is essential for utilization of maximum portion of various types of positive energy in Universe. Vastu shastra tells about rules of proper orientation by which maximum portion of positive energy can be utilized and residents are blessed with health and happiness.

- Whole article can be concluded under following points-
- Dishas and kala are universal karana dravya and nobody can escape these.
 - Proper orientation is essential for maximum benefits with any reference.
 - Vastu shastra tells about rules of proper orientation with special reference to dwellings, etc.
 - Maximum portion of positive energy circulating in Universe can be utilized only by following principles and rules of vastu shastra.
 - This positive energy affects all aspects of life and health is one of them.
 - Here the point of discussion is health aspect of vastu shastra which can be overviewed in the article.
 - People would escape from various health problems as well as correct their health problems by following simple rules during house construction and by simple corrections after construction. For this a vastu expert will be needed.

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Sristi Utpatti Krama Siddhanta- It's Applied Aspect And Modern Co-relation

***Dr Abichal Chattopadhyay**

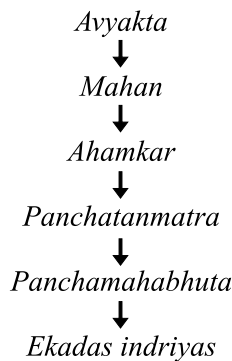
****Dr. Rubi Roy Chaudhuri**

The “*Sristi Utpatti Krama Siddhanta*” beholds two prominent school of thoughts viz.-

1. *Vaisesik Darshan* view Precisely adopted by *Charak*
2. *Sankhya Darshan* view---Precisely adopted by *Sushrut*

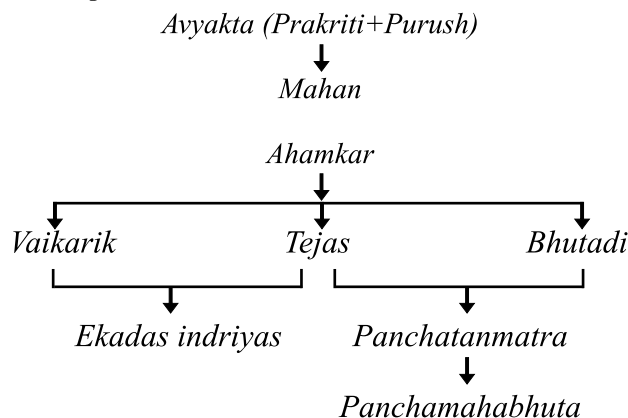
A: Vaishesik View:-

According to the *Vaishesik* school, as adopted by *Carak*, *Sristi Utpatti Kram* Follows----



B: Sankhya View:-

According to the *Sankhya* school, as adopted by *Sushrut*, *Sristi Utpatti Kram* Follows---



The applied aspect of these *darshanik* views as adopted by Ayurveda signifies an unmanifested form of energy-essential for initiation of the life process considered as *Avyakta*. When the *Avyakta* state, in lieu of being manifested, initiates stage of transformation, it is ascribed as *Mahan*. When this *Mahat tattwa* acquires the full momentum for being manifested it is attributed as *Ahamkaar*. Thereafter subtle to gross manifested forms-following further expression in due sequence continues. The *Sristi Utpatti Kram* in a nutshell explains the concept of embryology right from the act of fertilization.

This domain of early embryology viz. process of zygote formation is yet to be explored by the powers of Modern Medical Science. To clarify this statement-process of fertilization of the male and female gametes requires consideration in details.

The process of fertilization as described in the Modern Obstetrical Science beholds the following stages-

- Complete dissolution of the cells of the corona radiata, probably under the action of Hyaluronidase enzyme secreted by the acrosomal cap.
- Following penetration of the zona pellucida by the multiple ascending sperms.
- Contact of the vitelline membrane by a single potent sperm-the rest are then arrested at this stage by means of zonal reaction and vitelline block.
- Completion of the 2nd Meiotic Division of the oocyte immediately.-Resulting in liberation of Ovum (termed as female pronucleus) and the 2nd Polar body (which is eventually pushed in the peri-vitelline space)---each containing haploid number of chromosomes (23x)
- In Humans, both the head and neck of the spermatozoon enters the cytoplasm of the oocyte (the plasma membrane is however left outside). This head and neck of the spermatozoon becomes male pronucleus-containing haploid number of chromosomes (23x) or (23y).
- The male and the female pronuclei unite at the centre-with restoration of the diploid number of chromosome viz 46xx or 46xy (according to the sex formed)- which is constant for the species.

The zygote thus formed contains both paternal and maternal genetic materials. In some instances, an antigen called fertilizin present on the cortex and its coat of the ovum (female pronucleus) react with the antibody called anti-fertilizin liberated at the plasma membrane of the sperm head (male pronucleus). Thus the union between the two gametes may be affected by an immunological reaction.

However the details of the union of the male and female pronuclei and the interaction of the haploid chromosomes of each---except for the phenomenon of crossing-over and alike probable factors which are somewhat explained in context of genetic inheritance in meiotic type of cell division.: is yet to be clearly understood and established in Modern purview.

Ayurveda predominates in this light of knowledge. This entire process of fertilization along with mutual genetic

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interaction and establishment of the zygote comes under the domain of the first three entities of *Sristi Tattwa* viz *Avyakta Mahan-Ahamkaar* which serves as the determining force for initiation and establishment of these processes. These three factors are collectively known as *Chetana dhatu* which is the very essence of living state.

It initiates life as well as maintains it through out the span preventing the ultimate decay and death without the entity of which no *sharir* can be formed or considered as living. At the point of death -*Chetana* leaves the body rendering it to be converted into the subtlest *panchabhoutic* composition to which it belongs. The absence of *Chetana* does not satisfy life in all and every sense. This is even demonstrated in a particular pathological condition viz. *Raktagulma*- wherein the features of *garbha* are apparently present, mimicking the state. But witness no fruitful progeny due to the absence of *chetana*.

In Modern analogy also-if we consider the genetic profile of a complete Hyaditiform Mole, it accounts as 46xx karyotypes. The molar chromosomes are entirely derived from the father. The ovum nucleus may either be absent (empty ovum) or inactivated, which has been fertilized by a haploid sperm. It then duplicates its own chromosome after meiosis-Androgenesis. In rare cases chromosomal pattern may be 46xy or 45x. Details of these are yet to be established in Modern purview.

However in accordance to Ayurveda the driving force which generates, continues and establishes life is accomplished under the concept of *chetana*-which in light of the *Sristi tattwa* forbears three components in sequential evolution viz *avyakta- mahan* and *ahamkaar*. The rest sequel is thereby routine embryogenesis. Thus a zygote leads to morula and blastocyst- following differentiation of the totipotent cells into specialized cells, latter comprising Tissue, Organ, System, and eventually the entire human body through embryonic development of three germinal layer viz; ectoderm, mesoderm and endoderm.

Charak school of thought establishes an apparently simple and gross picturization of the same, wherein *panchatanmatra* gives rise to *panchamahabhut* which eventually gives origin to the *ekadasindriyas*. *Sushrut* however presents a more detailed outlook; wherein *avyakta* is categorized as *prakriti* and *purus*, the concept of union of female and male pronuclei. The rest continues as such till the breakage of *Aham tattwa* into *Sattwa, Raja, and Tama* factors each resulting in separate components. These are nothing but biochemical signals in terms of neurotransmitters, enzymes, hormones, interleukins, cytokines etc chemical mediators, which are responsible for the division and specialization of cell karyotyping from totipotent cells. Those eventually gives rise to the entire human body.

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"Whatever you do, don't ask him about the Big Bang theory."

Toxicity Evaluation of Drugs in Animal Models

*** Dr. Rajesh Kumar**

Introduction

Herbal drugs have made a great contribution to maintaining human health. Majority of the world's population in developing countries still relies on herbal drugs. WHO supports the use of herbal drugs and encourages the remedies that have been proven to be safe and effective. A few herbal drugs have withstood scientific testing, but others are used simply for traditional reasons to protect, restore or improve health. New evidence to answer question & of safety and efficacy about most of the herbal drugs is necessary to document the toxicological profile and boost the export of herbal drugs manufacturing in India.

Toxicity study:

It is essential for any compound having biological activity and applicable to use in human beings.

1. Acute toxicity study: Adverse effects occurring within a short time following administration of single dose.
2. Repeated dose toxicity study
 - a. Sub-acute toxicity
 - b. Chronic toxicity- period of 90 days or more.
3. Dermal toxicity test (Acute and Repeated dose dermal toxicity studies)
4. Special toxicity studies-Period of 2 years or more
 - a. Mutagenicity test
 - b. Carcinogenicity test
 - c. Reproductive and development toxicity tests

Paracelsus (1493-1541) stated that "All substances are poisons; the right dose differentiates a poison and remedy" this concept is the fundamental principle of toxicology and hazard assessment.

OECD guideline for toxicity studies:

- 420 Acute oral toxicity fixed dose method
- 423 Acute oral toxicity acute toxic class method
- 425 Acute oral toxicity up and down method
- 402 Acute dermal toxicity
- 404 Acute dermal irritation/corrosion
- 403 Acute inhalation toxicity
- 405 Acute eye irritation/corrosion
- 406 Skin sensitization
- 407 28 days repeated oral toxicity studies in rodents
- 408 90 days repeated oral toxicity studies in rodents
- 409 90 days repeated oral toxicity studies in non rodents
- 410 90 days repeated dermal toxicity
- 411 90 days inhalation toxicity study

- 412 28/14 days repeated dose inhalation toxicity study
- 413 90 days repeated dose inhalation toxicity study
- 414 Prenatal developmental toxicity study
- 421 Reproduction/development toxicity screening test
- 422 Neurotoxicity study in rodents
- 451 Carcinogenicity studies
- 452 Chronic toxicity studies
- 453 Combined chronic toxicity/carcinogenic studies

1.OECD 423 (Acute toxic class method)

Description of the method :

- Preparation of the animals : Healthy young adults between 8 and 12 weeks old should be used for study. Animals are kept in their cages for at least 5 days prior to start of the test to allow acclimatization of the laboratory condition (Temperature- $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$; Humidity not exceeding 70%).
- Preparation of dose: If vehicles other than water, than toxic characteristics of vehicle should be known (1% gum acacia, 1% SCMC, Tween 20 & 80, Honey, Vegetable oils etc.)
- Procedure: Three animals in each step.
- Doses: The starting dose selecting from one of the four fixed dose- 5,50,300,2000 mg/kg b/w, orally. If no information available regarding lethality of drug than dosing start from 300 mg/kg, body weight
- It is based on a stepwise procedure with the use of a minimum number of animals per step. Absence or presence of compounds related mortality of the animals (normally female) dose at step will determine the next step. The substance will be administered orally to a group of experimental animals of single sex at one of the defined dose. No further testing is required if no toxicity is observed and dosing of three additional animals, with the same dose. If toxicity observed then dosing three additional animals with the next higher or the next lower dose level depends up on toxicity.
- Limit test: When information suggests that mortality is unlikely at the higher starting dose level 2000 mg/kg, orally, then conduct the limit test. Limit test carried out at dose of 2000 mg/kg body weight with six animals (three animals per step) (exceptionally and additional dose of 5000 mg/kg can be considered when justified by specific regulatory need).

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Administration of doses :

Rodents- Volume not to exceed 1 ml/100 gm. body weight can be considered.

Rats- Overnight fasting prior to dosing but free access to drinking water.

Mouse- 3-4 hrs fasting prior to dosing but free access to drinking water. After administration of drugs, food may be withdrawn for 3-4 hrs in rats and 2 hours in mice.

Observation :

- Observe for 14 days . Closely observe for first four hours after the dosing and then at least once daily there after up to 14 days.
- Parameters: Mortality, Changes in skin , eyes, mucus , Behavioral pattern changes Respiratory, Circulatory, ANS, CNS , Observation of tremors, convulsions, salivation, diarrhea, sleep and coma, body weight (at least once in a week), Pathology parameters (gross necropsy and microscopic examination if organs showing any changes).

2. OECD 420 (Acute Oral Toxicity Fixed dose procedure)

- Fixed doses 5, 50, 300 , 2000mg/kg, orally (exceptionally and additional dose of 5000 mg/kg can be considered when justified by specific regulatory need). The initial dose select from the sighting study is the dose expected to produce some sign of toxicity without causing severe toxic effects. Further groups of animals may be given dose at higher or lower fixed dose depending on the presence or absence of toxicity. Limit test performed at 2000 mg/kg b.w , when information indicating test material is likely to be nontoxic or toxicity above regulatory limit dose.
- **Animal :** Rat of female sex preferable and 10-12 weeks old.
- **Number:** Total of five animals used for each dose level . The five animals will be making of one animal from the sighting study dose at the selected dose with additional four animals.
- **Dose:** Single dose, overnight fasting for rats and 3-4 hours fasting for mice.
- **Time interval between dosing :** Period of 3 or 4 days between dosing at each dose level is recommended . Onset, duration and severity of toxic signs.
- **Observation:** 14 days. Closely observe for first four hours and then at least daily thereafter up to 14 days. Parameters observed same as OECD 423.

3. OECD 425 (Acute Oral Toxicity up and down method)

- This is a sequential test, uses a maximum of 5 animals.
- Dose one animal at the test dose.

➤ Animal dies, conduct the main test to determine the LD_{50} .

➤ Animal survives, dose four additional animals sequentially observe for 14 days.

Main test

- The main test consists of single ordered dose progression in which single animals are given dose in sequence usually at 48 hour intervals (dosing is determined by the onset, duration and severity of toxic signs.) The first animal is given dose below the best preliminary estimate of LD_{50} . If the animal survives . The dose for second animal is increased by (a factor of) 3.2 times the original dose. If the first animal dies or appears morbid than dose for second animal is decreased by (a factor of) 3.2 times the original dose (3.2 is default factor corresponding to a dose progression of one half log unit). Using the default progression factor, dosing would be selected from the sequence dose 1.75, 5.5, 17.5, 55, 175, 550, 2000, (or 1.75, 5.5, 17.5, 55, 175, 550, 1750 and 5000 for specific regulatory needs). If no information available regarding lethality of drug then dosing started from 175 mg/kg, body weight.
- The preferable rodent species is rats although other rodents are also used. Prefer healthy young adult animals.
- Limit test:- carryout at 2000 mg/kg, orally (Exceptionally 5000mg/kg) when information indicating test material is likely to be nontoxic or toxicity above regulatory limit dose.
- The LD_{50} less than the test dose (2000 mg/kg) when 3 or more animals die.
- LD_{50} is greater than the test dose (2000 mg/kg) when 3 or more animals survive

Observation : 14 days same as OECD 423

4.OECD -407 (28 day repeated dose oral Toxicity study)

The test substance is orally administered daily in graduated doses to several groups of experimental animals, one dose level per group for period of 28 days. During the period of administration the animals are closely observed for signs of toxicity.

Animal spaces : Rat or Mice of nine weeks old. Feed with laboratory diet with water and house individually, small groups of same sex, not more than five animals per cage.

Housing condition :

- Temperature : $22^{\circ}C \pm 3^{\circ}C$
- Humidity : Not exceeding 70% generally 50-60%
- Lighting : 12 hr light 12 hr dark

Preparation of doses : Administration by gavages or via the diet or drinking water. Oral administration depends upon the physical / chemical properties of the

materials. If vehicles other than water, than toxic properties of the vehicle must be known.

- Number and sex of animal : 10 animals (5 female and 5 male) for each dose.
- Dosage : Generally at least test groups and the control group should be used. Control group receives the vehicle used in study. If from assessment of other data, no effects would be expected at a dose of 1000mg/kg/day, than limit test may be performed at dose 1000 mg/kg/day, for 28 days.
- Volume : Suspension (1ml/100gm body weight) and aqueous solution (2ml/100gm body weight)

Observation : 28 days

1. General clinical observation at least once a day.
2. Morbidity and mortality at least twice daily.
3. Changes in skin, eyes, mucous membrane, secretion and excretion.
4. ANS activity lacrimation, piloerection, pupil size, respiratory pattern , grip strength, Motor activity assessment.
5. Body weight, food consumption, water consumption : weekly
6. Hematology parameters : Haematocrit, Hb, RBC, WBC, DC, platelet, clotting time.
7. Clinical Biochemistry : Liver and kidney function test.
8. Plasma or serum parameters : Na, K, glucose, cholesterol, urea, creatinine, SGOT, SGPT, total protein , albumin, ALP, Gamma glutamyl transpeptidase.
9. Urine analysis : Volume, appearance, specific gravity, pH, protein glucose and blood cells.
10. Metabolic profiles : Calcium, phosphate and triglycerides.
11. Pathology : Liver, Kidney, adrenals, testis, thymus, spleen, brain, stomach, intestine, breast, lungs, urinary bladder, peripheral nerve, bone marrow.

OECD 408 (90 day repeated dose oral toxicity)

The test substance is orally administered daily in graduated doses to several groups of experimental animals, one dose level per group for period of 90 days. During the period of administration the animals are closely observed for signs of toxicity.

Animal species : Rat of Mice of nine weeks old. Feed with laboratory diet with water and housed individually, small group of same sex, not more than five animals per cage.

Housing condition :

- Temperature : $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$
- Humidity : Not exceeding 70% generally 50 - 60 %
- Lighting : 12 hr light 12 hr dark

Preparation of doses : Administration by gavages or via the diet drinking water. Oral administration depends upon the physical/chemical properties of the materials. If vehicles other than water, than toxic properties of the

vehicles must be known.

- **Number and sex of animal :** 10 animals (5 female and 5 male) for each dose.
- **Dosage :** Generally at least three test groups and the control groups should be used. Control groups receive the vehicle used in study. If from assessment of other data, no effects would be expected at a dose of 1000 mg/kg/day, then limit test may be performed at dose of 1000 mg/kg/day, for 90 days.
- **Volume :** Suspension (1ml/100gm body weight) and aqueous solution (2ml/100gm body weight)

Observation : 90 days same as OECD 407.

6.OECD 410 (21/28 day Repeated dose Toxicity study)

Principal : The test substances applied daily to the skin in graduated doses to several groups of experimental animals, one dose per group for 21/28 days. During the period of administration the animals are closely observed for signs of toxicity.

Animals : Adult rat (200-300 gm), Rabbits (2-3 kg), Guinea pigs (350-450 gm). The animals are accommodated at same environmental conditions. Then all are individually housed in cage. The temperature maintained at $22^{\circ}\text{C} (\pm 3^{\circ}\text{C})$ and relative humidity not exceeding 70% generally 50-60% 12 hr light and 12 hr dark light cycle provided to animals and they are maintained on standard laboratory diet + *ad libitum* supply of drinking water.

Number and sex : 10 animals (5 female and 5 male)

Dose level : At least three doses level with control and vehicle control if necessary.

Limit test : One dose level at least 1 gm/kg, body weight Test drug applied on not less than 10% of the body surface area uniformly for 6 hours for a day.

Observation : Signs and toxicity, ANS, CNS, Behavior pattern, Food consumption weekly, Weight variation weekly.

Clinical examination :

- **Haematology parameter :** Haemocrit, Hb , RBC, WBC, DC, clotting time, prothrombin time and platelet count.
- **Clinical biochemistry :** Liver and Kidney function tests Na, K, Cl, Ca, glucose etc.
- **Pathology :** Gross necropsy, Histopathology of organs showing gross changes.

Prevention and Cure of Hypertension Through Ayurveda

* Dr. Sunita Godara ** Dr. Anita Sharma *** Dr. Vinod Kumar Gothecha

Abstract

Heart has major role in our body system. Heart is concerned not only through its physical value, but mental and spiritual also, thus the care of heart is most important.

The heart requires the utmost of care so that you are healthy both inside and out. An unhealthy heart leads to many other health conditions and illnesses like atherosclerosis, angina, ischaemic heart disease, rheumatic heart disease, hypertension etc. Take care of your heart and take care of your health and wellness to lead a most healthy and balanced life. Ayurveda is the “science of life” and is a traditional healing system that originated in India. Ayurvedic medicine and healing encompasses a wide range of techniques that include diet, herbal remedies, ayurvedic herbs including *Arjuna*, *Brahmi* and *Ashwagandha*, exercise, spiritual practices. Lifestyle and other healing approaches help to maintain a balanced body & mind. Ayurvedic medicine and natural herbal and homeopathic remedies can keep your heart healthy and pumping at its best.

Hypertension or high blood pressure is the leading cause of death in the world today. The bigger danger with hypertension is that the person suffering from this condition may not even realize that he or she is suffering from this condition until it may become too late.

Hypertension itself is a very dangerous condition; but it can cause drastic damage to the liver, brain, kidneys and the heart. The damage to these vital organs is the most important cause of death.

According to Ayurveda, high blood pressure involves all the *doshas*, the heart, and the blood vessels. We can see signs and symptoms of derangement of *vata dosha* mainly that of '*Vyana vayu*' in high blood pressure.

Treatment is based on bringing these imbalances back to normal. In the treatment of hypertension; nutrition, physical exercise, breathing exercises (Pranayama), yoga, meditation, behavioural modification along with various herbs and minerals, all play important role.

Hypertension or high blood pressure- A silent killer of modern times

Introduction

The human heart beat has two distinct phases the systole when the ventricles are contracting, and the diastole when the ventricles are relaxing. During both

the times, the heart exerts pressure on the blood.

Hypertension is a chronic medical condition in which the blood pressure is elevated. It is also referred to as **high blood pressure** or shortened to **HT**, **HTN** or **HPN**. The word "hypertension", by itself, normally refers to systemic, arterial hypertension.

Hypertension can be classified as either **essential** (primary) or **secondary**. Essential or primary hypertension means that no medical cause can be found to explain the raised blood pressure. It is common. About 90-95% of hypertension is essential hypertension. Secondary hypertension indicates that the high blood pressure is a result of (*i.e.*, secondary to) another condition, such as kidney disease or tumours (adrenal adenoma).

Persistent hypertension is one of the risk factors for strokes, heart attacks, heart failure and arterial aneurysm, and is a leading cause of chronic renal failure.

According to Ayurveda

Ayurvedic text does not explain hypertension as it is, probably because hypertension is a modern disease that was absent in the past. They first identified the factors of hypertension like symptoms and progression and identified the structural and functional factors that got imbalanced in the affected patients.

Secondly they correlated these factors with diseases already mentioned in Ayurvedic texts, thus helping them to apply the treatment & medicines of correlated diseases in a new unexplained condition. Now, ayurveda sees hypertension as a dysfunction of all the doshas, viz. vata, pitta and kapha. **In ayurveda, Hypertension is referred to as *Rakta gata vata*** and it sees the vitiation of vata and pitta doshas as the main cause. People with Pitta and Vata predominant constitution and Pitta and Vata imbalance, are more prone to hypertension than any other.

Classification

A recent classification recommends blood pressure criteria for defining normal blood pressure, prehypertension, hypertension (stages I and II), and isolated systolic hypertension, which is a common occurrence among the elderly. These readings are based on the average of seated blood pressure readings that were properly measured during 2 or more office visits. In individuals older than 50 years, hypertension is considered to be present when a person's blood pressure is consistently above 140 mmHg systolic or 90 mmHg diastolic.

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Classification	Systolic pressure		Diastolic pressure	
	mmHg	kPa (kN/m ²)	mmHg	kPa (kN/m ²)
Normal	90-119	12-15.9	60-79	8.0-10.5
Prehypertension	120-139	16.0-18.5	80-89	10.7-11.9
Stage 1	140-159	18.7-21.2	90-99	12.0-13.2
Stage 2	>160	>21.3	>100	>13.3
Isolated systolic hypertension	>140	>18.7	<90	<12.0

Source: American Heart Association (2003).

Ayurveda says that all the three *doshas* are considered responsible for *rakta gata vata*, i.e. hypertension. For the three different types of vitiation, there are different symptoms observed.

• **Vata Hypertension** Hypertension caused due to *vata dosha* can be increased due to mental anxiety, tensions, stress and worries.

• **Pitta Hypertension** Hypertension caused due to *pitta dosha* can be increased due to strong emotions such as anger, shock, hatred and jealousy.

• **Kapha Hypertension** Hypertension caused due to *kapha dosha* can be increased due to malignant factors such as malfunctioning of the vital organs

Vata Hypertension(symptoms)

- The blood pressure may rise suddenly and fall suddenly with nervous tension.
- Irregular or erratic pulse both in rhythm and strength.
- An increase in blood pressure will be followed by worry, strain, overwork, anxiety or insomnia.
- Frequently associated with nervous system disorders.

Pitta Hypertension(symptoms)

- Flushed face, Red eyes, Violent headaches, Sensitivity to light, Nosebleeds, Anger, Irritability, Burning sensations, Wiry and tight pulse, Associated with liver disorders and the accumulation of internal heat.

Kapha Hypertension (symptoms)

- The blood pressure remains continually high, (no fluctuation as in Pitta hypertension.), Obesity, Tiredness, Edema, High cholesterol.

Symptoms of hypertension (modern aspect)

- The person may feel occasional headache, giddiness, dizziness and a feeling of instability, confusion.
- Palpitations are common.
- Visual disturbances, and nausea and vomiting (hypertensive encephalopathy)
- Hypertension sufferers are generally insomniacs, i.e. they cannot sleep well at night.
- Slight exertion can cause dyspnoea.
- Even the digestive system may play truant and there may be regular constipation.

Complications

Hypertension can affect several regions of the body when the blood pressure become too high. i.e bleeding inside the eyes, cerebral haemorrhage, heart attack.

Transmission - Run in families.

Management-

Most of the antihypertensive drugs have their own side effects like decreased libido, anxiety, renal toxicity etc. So the best approach is to live with a preventive mindset and if you find yourself in the pangs of hypertension, use by all means one of alternative approaches Ayurveda, herbs, yoga, relaxation, exercise and diet to get rid of high blood pressure.

Prevention and Basic Care during Hypertension

Mild Hypertension: This is the first stage or first warning sign of a disorder and most people don't feel any sign or symptom. Patient needs only **dietary and lifestyle modification**.

Moderate Hypertension: Patient must take some medication under some medical expert if his blood pressure levels are in this range and be advised to follow **ayurvedic remedies and lifestyle along with modern drugs**.

Severe Hypertension: Patients with severe and fluctuating blood pressure. Usually ayurvedist might not provide much benefit by simply suggesting some dietary or herbal supplements. Such persons are on multiple drugs and they might need hospitalization, they do **need monitored dietary and lifestyle regimen over a period of several months**.

Useful herbs in the Treatment of Hypertension

1. Lahsuna (Allium sativum) - Garlic is the most effective herb used in the treatment of hypertension. It reduces the pressure and tension in the arteries.

It slows down the pulse.

It modifies the heart rhythm.

It relieves dizziness and shortness of breath brought on by high blood pressure.

It also relieves gas that can form in the digestive tract due to high blood pressure.

Garlic can be included in the daily diet. About two to three cloves before every meal can go a long way in the home treatment of high blood pressure.

2.Sarpagandha (Rauwolfia serpentina) - Rauwolfia is another acclaimed remedy for the treatment of high blood pressure. It is considered as the best remedy and is also used quite popularly in the western countries.

Half a teaspoon of its powder taken thrice a day is very beneficial in reducing high blood pressure. But its use must be under supervision because the alkaloids present in rauwolfia are known to have some undesirable side-effects.

3. Alfalfa (Medicago sativa) -The fresh leaves of the alfalfa when taken in conjunction with carrot juice are known to have immense curative benefits on all kinds of heart ailments, including those brought on by high blood pressure.

4. Gandana or Rojmani (Achillea millefolium)- It induces sweat, which brings blood towards the skin. Better circulation helps to reduce high blood pressure.

5. Ambarbaris (Berberis vulgaris) - It brings down high blood pressure by dilating the arteries.

6. Prajmoda (Petroselinum crispum) Parsley helps in maintaining the small arteries and the capillaries in healthy circulatory condition. It can be taken as a beverage skimmed with water, several times a day.

7. Arjuna (Terminalia arjuna)- Arjuna is a coronary vasodilator. It protects the heart, strengthens circulation, and helps to maintain the tone and health of the heart muscle. It is also useful in stopping bleeding and promotes healing after a heart attack.

8. Guggul (Commiphora mukul)- It has been shown to lower blood-fat levels while raising levels of HDL, the so called "good cholesterol". It is useful in atherosclerosis, psoriasis and cardiac ischemia. It has been shown that Guggul can lower blood cholesterol by 14-27% and can lower triglycerides by 22-30%.

9. Indian gooseberry- A tablespoon each of fresh amla juice and honey mixed together should be taken every morning as an effective Ayurvedic treatment for hypertension.

10. Lemon- The vitamin C found in lemon is essential for preventing capillary fragility

11. Grapefruit- The vitamin C content in the fruit is helpful in toning up the arteries.

12. Watermelon- The seeds of watermelon, dried and roasted, should be taken.

Preparations

Asava/Arishta - **Balarishta, Punarnavarishta**

Ghrita- **Arjuna Ghrita, Shadanga Ghrita**

Vati - **Abana, Arjin, Arjunin, Bipasil, Caritone**

Dhara therapy- Therapy is performed every morning for about half an hour with medicated oil boiled with bala and milk.

Diet - All the three doshas are responsible for the aggravation of blood pressure causing hypertension in the human body. Hence the diet to be taken must be a tridosha pacifying diet. The following dietary guidelines must be followed:-

- A vegetarian diet including the following is ideal for hypertension - Garlic, Lemon, parsley, bitter gourd, drumstick etc.

- Carbohydrate-rich vegetables must be taken in order to facilitate easy movement of bowels. This will reduce

constipation, which aggravates vata. Useful vegetables for people with hypertension are bitter gourd and drumsticks.

-Rice: It makes a perfect diet for hypertensives who have been advised salt-restricted diets. Calcium in brown rice, in particular, soothes and relaxes the nervous system and helps relieve the symptoms of high blood pressure.

-Potato: Potatoes, especially in boiled form, are a valuable food for lowering blood pressure.

-Among fruits bananas, guavas, apples and oranges are considered to be beneficial. Vegetable juice: Raw vegetable juices, especially carrot and spinach, taken separately or in combination, are also beneficial in the treatment of high blood pressure.

-Dietary calcium and potassium: These two essential nutrients help the body excrete excess sodium and are involved in important functions which control the working of the vascular system. Potassium is found in abundance in fruits and vegetables, and calcium in dairy products.

- Hot and spicy food which will be difficult to digest must be avoided.

-Salt should be reduced in the diet.

-Chocolates and sweets must be kept as far away from the patient of hypertension as possible.

-Hydrogenated oils must be totally eliminated from the diet. But ghee and butter prepared from cow's milk can be given. Buffalo milk is to be avoided.

-Cereals and pulses must be reduced.

-Coffee should be avoided because of its caffeine content. Coffee, which contains caffeine, enhances the action of adrenaline and nor adrenaline, which are important in increasing blood pressure levels.

-Cigarette smokers tend to have high blood pressure. Nicotine increases resting heart rate and also increases the release of adrenaline.

Life Style:

Improving our lifestyle by adoption of ethical practices mentioned in '**Acharya Rasayana**' is must if we really want to stay away from mental and physical stress and from eventual hypertension.

•**Regular exercise** is the best way to keep hypertension at bay. Walking/jogging is a good exercise as it helps in reducing weight.

•**Practicing yoga and meditation** is very effective. Regular yoga practice and meditation will help in leading a stress free life.

•**Sound sleep and proper rest** is very essential. Try to get at least 8 hours of sleep and proper rest

•**Avoid anger, tension, anxiety and loud speaking** as all these increases blood pressure.

•**Laughter therapy** is considered a good medicine for the treatment of hypertension.

•**Avoid smoking as cigarette** smokers tend to have high blood pressure due to its nicotine content.

•**Simple breathing exercise** will help in calming down the mind. Adopt breathing exercise whenever we are tense, nervous or anxious.

Teaching- The Ideal tool for reforming status of Ayurveda

Prof. Anup Kumar Gakkhar

The true purpose of any science finds its worth justified only when its applications exhibits some utility for the masses. Ayurveda the time tested science which enjoyed pristine glory finds its status in troubled waters in the country of its origin in spite of greater controversy, excitement and enthusiasm about this science abroad. If we visualize the present scenario of ayurveda, we find that this oriental science has never been the preference to be adopted as a profession by the brilliant students as a first choice. Most of them join this profession as a compulsion as a 2nd preference after being rejected in admission to modern system of medicine. After reluctant entry in the college, students find it difficult to be in tune owing to abrupt change of following ideology from scientific outlook to *aptopdesh*.. It takes a lot of time to adjust them in such an atmosphere. Confusion prevails in them about the authenticity of the subject they read. Working of hospital in most of the colleges add full to their fury. Beds filled with dust and negligible number of patients in the hospital makes the scene worse. Students are left with no option but to make efforts to manage to get training in private nursing homes in modern medicines .This training becomes their bread and butter for whole life. Most of the physicians who have to make encroachments on other system of medicine are impelled to lead such type of life with social stigma.

It is not their fault for such type of deviations. It is due to the training they had during their education. When ayurvedic graduates start abstaining from using ayurvedic drugs, it is the quacks that come forward to dominate the scene to fill the vacuum. They indulge in lot of malpractices thus leaving no stone unturned to defame the system. There are many misconceptions in the society about Ayurveda. This system is believed to be slow acting system. People think that if its medicine doesn't have good effects it can't prove even harmful too. Many people think its medicines don't have any side effects. It is generally believed that ayurvedic drugs do not have expiry drugs. Tall claims are made about the system. Ayurveda is projected as a miraculous system having cure for all thus making people to develop utopian expectations. The elite class of the society takes Ayurveda as non scientific having no research. Medicines containing mercury are seen with suspicion .Ayurveda's name is cashed for selling various commodities. Ayurveda is not only the herbal. But this

name has captured the world market. Many products which are chemical in nature after adding some herbs as ingredients are sold as herbal products. Unfortunately it is not only the masses but some of the ayurvedic graduates also suffer from these misconceptions.

If we scan the whole gamut of the series of this distortion, clearly it is the lack of proper training of the ayurvedic physicians. The persons who carry on their shoulders responsibility to educate the society and propagate and serve the cause of ayurveda to masses are themselves living in the dark. The solution to improve the status of ayurveda lies in improving the status of ayurvedic education. By bringing changes in ayurvedic education policy betterments can be achieved. The purpose of ayurvedic education should be to make the people aware about the true picture of the system. Attempts should be made to eliminate misconceptions. Ayurvedic colleges should prepare physicians as finished products. Emphasis should be more on practical training. Efforts should be made to make its principles eye catching to the people. This can be achieved by making changes in curriculum and syllabus etc. Before something can be suggested for this changes it is imperative to discuss the shortcomings and lacunas in the present system. There are many controversial plants discussed in the ancient texts. They continue unnecessarily in the syllabus. Many topics like name of *krimis* etc. serve extra burden both for the students and teachers. This should be reserved for PG courses. Texts should be reorganized. For instance there are many diseases which find their references scattered .For instances, *shiro roga* finds its description at three different phases, besides there are many other references in whole of the texts. Besides the main description of a disease hundreds of its references are available in the whole text. Any topic when studied from this angle makes the topic more informative. Syllabus of *swasthvrita* needs more incorporation of ayurvedic principles. Syllabus of juris prudence is not in tune with the needs of ayurvedic physicians. *Sharir rachna* contains topics which don't exhibit relevancy. *Sharir kriya* contains many concepts which are beyond explanation.

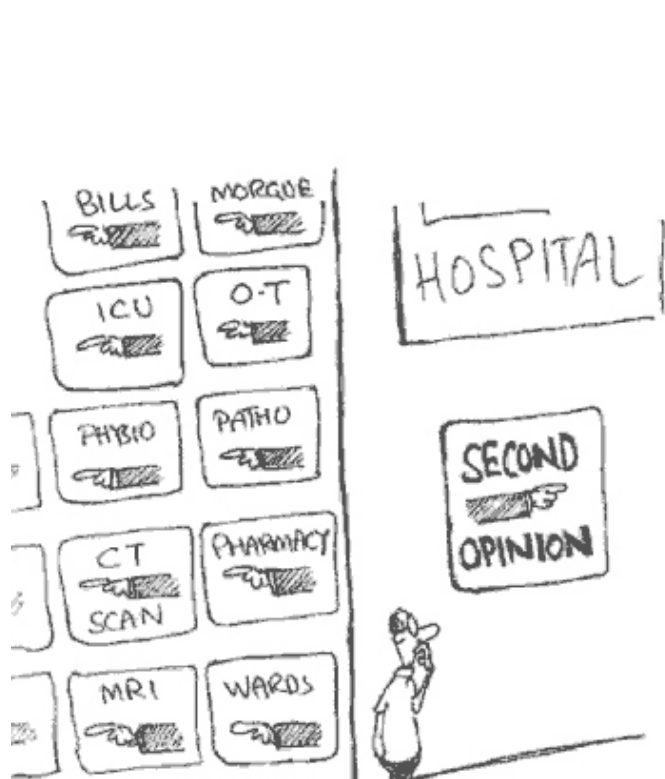
Study of *parsooti tantra* should be designed so as to enable make pregnancy a safe and healthy experience. Knowledge of *bal roga* should be designed so as to make physicians perfect in tackling children disease.

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Similarly, all subjects should be designed to explore its applied potential to maximum.. Special efforts should be done to make students expert in Drug identification, making preparations of ayurvedic medicines. Students should develop skill in ayurvedic diagnosis and competence in principles of treatment. Professsional system should be converted to semester system. Compulsory rotary internship should be followed in practice. No college should be given permission to run without a specific number of patients in the hospital. It may be noted that ancient texts of ayurveda have in them some directives about teaching of ayurveda and these should be followed. Though every one concerned talks about use of modern technique of various aids in teaching, the need of the hour is to lay more stress on improving the quality of the subject. It should be remembered that Indian system of education was in praise centuries ago. Foreign rulers tried their best to annihilate the great legacy and rich tradition of the ayurvedic education. When *Gurukul parampra* got abolished DAV management started first Ayurvedic college of the undivided India in Lahore in 1898. There after many colleges started . Now there are 233 colleges in the country imparting ayurvedic education at

graduation level.110 years old tradition of this flow of knowledge has made many changes in the syllabus but the journey is still on .Many facets need to be re polished and many new are still to be added. There is a lot of potential available in various subjects to be explored and probed for making changes .Ancient texts have discussed in detail about the moral values of the physicians ,teachers and students a new subject about ethical and moral values should be introduced in BAMS teaching.

Teaching should be more practice and clinical research oriented. A majority of the Docs may not be knowing the effects of a single medicine or a concoction other than what matter is available in the name of *charaka*, *sushruta* etc. written. A research oriented practice should be emphasized wherein full track record of the treatment is followed up personally by all the students/docs/practitioners and such results must be compared in a compulsory annual conference which should form a part of the exam and not just vomiting out some *shlokas* or *sootras*. Teaching is the most suitable tool for improving the status of ayurveda in the society and to maximize its impact on more and more people its quality should be kept in high spirits.



Avoid Cardiac Diseases & Lengthen The Life Span

Dr. Nur Mohammad Iqbal Chowdhury

In the motorized & acquisitive world now a days the advanced knowledge & equipment have added to the comforts of human beings on one hand; but ever increasing pressure, altered food habits and sedentary life styles have resulted in precipitation of various disorders on the other hand. A few such life style disorders are fatal and push the individual towards death. Different psychological disorders, Cardiac disorders, Osteo-arthritis, Insomnia, Hypertension, Anxiety and Depressive disorders are some of the examples of commonly found disorders in the world, which are the causes of great concern to scientists these days. Majority of people become panicky if they are exposed to some type of Cardiac Disorders, because it is a common belief amongst masses that the precipitation of different types of Hridrogas (Cardiac Disorders) means impending death. Actually this is not true. All types of Hridrogas (Cardiac Disorders) are not fatal and if certain timely precautions are taken by an individual, these can be prevented.

Of total deaths 33% are reported to be due to Cardiac Diseases. It is very shocking that out of total deaths reported due to Heart Attack 15% of patients are below 40 years of age. Heart is a fist shaped organ situated in the middle of the chest weighing approx. 250-400 gms. Heart acts as a pump to supply blood, oxygen and nutrients to every cell of the body. A pair of Coronary Arteries supply blood to the Heart. Normal pulse rate in healthy young adult is 70-80 per minute and the range of normal Blood Pressure is 100-120/70-90 mm of Hg.

Risk Factors Associated with Cardiac Disorders

Various risk factors take active part in the precipitation of different Cardiac Disorders which are classified into following two groups-

1. Irreversible Risk Factors

These are the factors which can not be altered with the help of medicines or Dietary modifications-

(a) Age - The incidence of various Cardiac Disorders is maximum in middle aged persons, although there is no age bar. In females the incidence of different Heart Disorders increases considerably after menopause.

(b) Sex - Either sex is predisposed to Heart Disorders in equal ratio after menopause.

(c) Family History - Family History of Heart Disorders may be found in respective generations of the same family.

Reversible Risk Factors

Judicious use of Aushadhi, Ahara, Vihara and

adequate maintenance of balance in Ahara, Nidra and Brahmacharya may lead to correction of various risk factors of Cardiac Disorders which include.

- (a) Smoking
- (b) Sedentary Habits
- (c) High Blood Pressure
- (d) Elevated Serum Cholesterol
- (e) Disturbed Lipid Profile
- (f) Stressful situations

Once these factors are corrected, it helps in prevention of initiation of pathogenesis of various Cardiac Disorders.

Important Causes of Cardiac disease (Hridroga)

Following are important causative factors of various Cardiac Diseases (Hridrogas) -

- (a) Drastic Life Style changes
- (b) Changes in food habits
- (c) Lack of Physical activities
- (d) Environmental pollution
- (e) Stressful life
- (f) Tobacco
- (g) Alcohol
- (h) Obesity
- (i) Inadequate control of Heart Diseases

Symptoms of Cardiac Patients

If following symptoms persist in an individual for considerable time, he should consult a good Cardiologist to rule out Cardiac Disorders-

- (a) Dyspnoea
- (b) Cough
- (c) Oedema
- (d) Right Upper Abdominal pain
- (e) Oliguria, Nocturia
- (f) Palpitation
- (g) Chest pain
- (h) Syncope / Fainting attacks
- (i) fatigue
- (j) Cyanosis

Prevention of Heart Diseases

Cardiac Disorders once developed may be fatal in due course of time. So it is advisable that efforts should be made for prevention of Cardiac Disorders by suggesting to the patient-

- (a) Regular exercises
- (b) Control of Hypertension
- (c) Dietary changes

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- (d) Low Fat Diet
- (e) To stop smoking
- (f) Avoid (i) Tobacco
 - (ii) Alcohol
 - (iii) Stress
- (g) Patient Education- Counseling

Principles of Management of Cardiac Disorders

Besides Nidana Parivarjana following four principles of management of various Cardiac Disorders are to be followed religiously for effective results-

- (a) Balanced and controlled Diet
- (b) Regular Exercises (Yoga) and Life Style modifications
- (c) Cardio Protective Drugs
- (d) Counseling of the patient

These principles of management of Cardiac Disorders are discussed here briefly-

(1) Balanced and Controlled Diet (Dietary Modifications)

One should eat to live and not live to eat. Over eating should be avoided at all costs. Simple, bland, fresh diet is to be consumed. Bala, Varna and Oja of an individual depend on the Diet consumed. Diet should include adequate carbohydrates, proteins, fats minerals, salts, vitamins, water and high roughage content. Saturated fats should be avoided. The use of unsaturated fats should be encouraged. A patient of Cardiac diseases should not take more than 2-3 gms common salt daily. The use of Saindhava lavana is to be encouraged in place of common salt. Alcohol, wine and drinks are to be cut down.

2. Regular Exercises (Yoga) and Life Style modifications

Most of the people like Doctors, Engineers, Lawyers and Executives lead sedentary life style and do not involve themselves in physical activities/exercises. Sedentary habits lead to accumulation of additional fat in the body which in turn results in elevation of the level of Serum Cholesterol. It may precipitate various Cardiac Disorders. Brisk walking, Jogging, playing various games and Yogasanas are effective measures for preventing Cardiac Disorders. There is no need of heavy exercises.

Yogasanas indicated in Cardiac Disorders

Following Yogasanas are useful in treating Cardiac Disorders provided these are performed regularly -

- (a) Shavasana
- (b) Vajrasana
- (c) Pranayama
- (d) Surya Namaskar
- (e) Pawana Muktasana etc.

Precautions

Shirshasana and Sarvangasana are contra- indicated in Cardiac Disorders.

3. Cardio Protective Drugs

Following drugs are effective in managing various Cardiac Disorders-

(a) **Naimittika Rasayana :-** A Rasayana is an agent which is used for obtaining good quality Dhatus. Rasayana agent nourishes and revitalizes all body tissues, improves immunity and mental faculties. An agent used with the objective of specific inhibition of a particular disease besides producing general Rasayana Prabhava in the body is called as Naimittika Rasayana. Following Naimittika Rasayana drugs are very effective in managing Cardiac Disorders- Arjuna, Lahasuna, Kanera, Sarpagandha, Amalki, Haritaki, Guggulu and Pushakarmula etc.

(b) Antihypertensive & Cardiotonic Drugs

Lahasuna, Pyaja Palandu (Onion), Amalki, Gokshura & Ashwagandha etc. these drugs effectively control high Blood Pressure.

(c) Hypocholestraemic Drugs

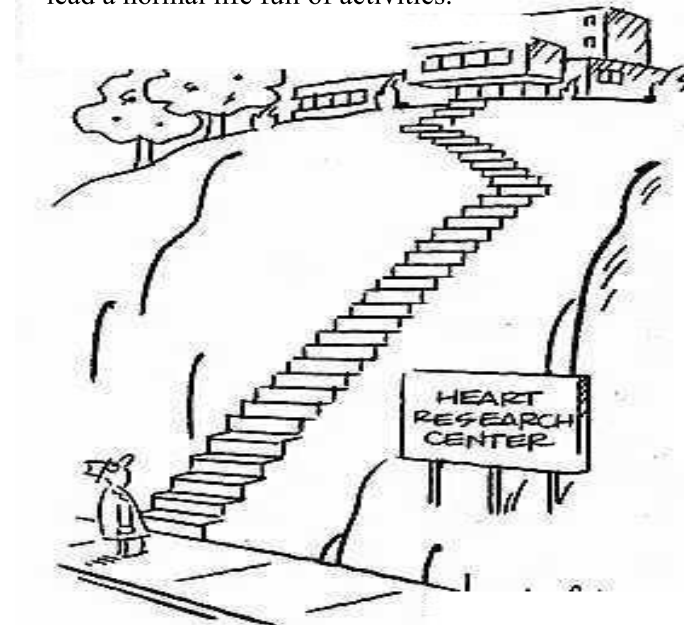
These drugs reduce Serum Cholesterol and correct Lipid Profile- Vacha, Guggulu, Methi Dana, Haldi, Adraka and Amalki etc.

4.Counseling of the patient

The patients suffering from Cardiac Disorders should be educated properly about various instructions which may be followed by the patient religiously which help in effective management of the underlying disease.

Conclusions

- (1) By proper Diet and Life Style modifications various Cardiac Disorders can easily be prevented.
- (2) Even after suffering from a Heart Attack if one takes sufficient rest with appropriate medications, one can lead a normal life full of activities.



Pottali Kalpana : A Conceptual Study

***Dr. Maruti T. Narhare **Dr. L. Nagireddy, ***Dr. Namrata Joshi**

Pottali Kalpana is one of the most precious & peculiar Kalpana described in Rasa Shastra. But unfortunately at present this kalpana is vanishing and very limited knowledge is available. But our Classical texts have described it elaborately.

It is a highly evolved pharmaceutical technique in which the ingredients are used in shodhita, incinerated or even in sindur form, the speciality of Pottali Kalpana lies in binding different varieties of drugs into a single molecular form. This kalpana was invented with a vision for convenience in transportation, administration, dose fixation, preservation & enhancement of properties.

विस्तरितस्य वस्तुनो अल्पीभवनम् पोट्टं
पोट्टलाति गृह्णाति इति पोट्टली।

(शब्द कल्प द्रुम)

Pottali Can be defined as: To collect scattered materials into a compact and comprehensive size Otherwise technique or processing which gives compactness to the scattered.

History of Pottali: There were no references found in Vedic literature. The pottali word is found in Charaka samhita mainly, meaning the word for bundling the various herbal drugs by a piece of cloth and to apply for sudation in various diseases.

But from the point of Rasa literatures, Pottali kalpana should be considered as separate kalpana of metallo-mineral drugs evolved in order to keep multiple components like bhasma, dhatu, ratna etc. into a compactly processed one.

The first & foremost description of Pottali kalpana is found in Rasa Prakash Sudhakara. In this text Acharya Yasodhar Bhatta has formulated six pottali kalpa's. Acharya Rasa Vagbhatta[R. R. S.] further mentioned six pottali in his text.

Acharya Dunduknath[R. Chi.] has mentioned three pottali yogas in his text which were mere repletion of previous texts. Acharya Ananta Dev Suri[Rasa. Chi] has mentioned six pottali kalpas in his text which are unique and original yogas.

The speciality of the author is that he has mentioned for first time the method of preparation of Hiranya garbha pottali in dola yantra by molten sulphur. While

the previous authors have mentioned it as Putapaka samskara. Krishna Gopal Bhatta[R. S. S] has mentioned 5 pottali kalpas.

Bhavprakash has mentioned Sankha garbha pottali in Atisaradhi Karana in Kaparda purana and subjecting to putapaka. Rasa Koumadi has mentioned Sankha garbha pottali and Ratna garbha pottali. Acharya Chudamani [R. K.] has mentioned 8 pottali kalpas.

Author of Yogaratnakara has mentioned six pottali kalpas of which two varieties of Hema garbha pottali are fundamental contribution of the author. Besides this he developed the pottali paka procedure by sulphur bath in one iron vessel.

Rasa Yoga Sagara and Bharat Bhaishajya Ratnakara have compiled many pottali yogas from previous texts.

Classification of Pottali

1.As per ingredients

A.With Parada- Ratna Garbha Pottali, Hema Garbha Pottali

B.Without Parada- Gandhakadi Pottali.

2.As per Gandhaka Paka

A.By Dola Yantra- Hema garbha pottali [Rasamritam].

B.Without Dola Yantra- Hiranya garbha pottali[Y. R.].

C.Swedan by Kusrara primarily and followed by sulphur bath-Hema garbha pottali[R. Y. S.].

D.Gandhaka taila- Hema garbha pottali [S. B. M.].

For the preparation of pottali various putas are mentioned i.e Gaja puta, Kukkut puta, Bhudara puta, Bhanda puta etc. Apart from the general putapaka procedures some special techniques are adopted for the preparation of Lokanath pottali and Shankha garbha pottali.

In maximum number of pottalis parada, Gandhaka and Suvarna are taken as the ingredients. Gold is used either in bhasma or in foil form.

Ghrit Kumari Swarasa is used for binding, trituration and to give shape of the pottali, besides isabgul, Babul niriyasa, Tulsi svarasa, Chitraka svarasa are advocated by the group of some authors. (R.S, R.Y.S, R.R.S)

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Signs regarding paka lakshana -

- The Paka of pottali is considered perfect or completed when the colour of sulphur becomes Vyoma Varna (Sky colour) (Y.R) or neelashma (bluish black) (R.M).
- Metallic sound produced by the pottali when banged against the container or any hard substances.
- Lastly when the cloth containing pottali is burnt, that sign is also considered as paka lakshana.

After paka lakshana the pottalis are taken out and silk cloth is removed by cutting it with a sharp instrument. After self cooling pottalis are polished with a knife to remove the superficial coating of gandhak adhered to it and kept in suitable container for therapeutic uses.

The container in which pottali is to be boiled in the molten sulphur media, should be of earthen one and it should be smeared with ghee properly before the gandhaka paka (R. Chi.) Whereas another author has mentioned Iron container. (Y.R) To tie the pottali for gandhaka paka silk cloth is used but the layer of the cloth is to be tied varies from 1-4 sandwiched with fine powder of sulphur in different texts (R.Y.S., R.S., Y.R). The quantity of sulphur is to be equal with the weight of pottali taken (Y.R). Whereas others opine 2-6 times to the weight of the pottali (R.S.) Regarding pottali paka all the authors have mentioned indirect heat application and mandagni. But different views are found regarding the duration of paka of pottali. i.e. 1-8 hrs. But yoga Ratnakara mentioned the paka kala up to the attainment of Vyomavarna of gandhaka.

Regarding the shape of pottali some authors opine, the shape to look like: base being wide with narrowly pointed towards the top resembling the shape of the pyramid (R.S), or puga phala (Va. Chi.) or pottali should be in the shape of varti and approximately weighing one karsha (12gm.)

Mode of administration:

This pottali should be rubbed over a scratch stone for desired number of rotations by applying madhu & ghreeta as a medium and whole paste is administered orally.

Precautions:

- Care should be taken to keep pottali always immersed in molten sulphur without touching the bottom and sides of the pot.
- Heat should be regulated properly to maintain within the range of 120 C-140C throughout the process to keep the sulphur in liquid form.
- Pottali should be tightly tied taking care that pottali is surrounded by fine powder of Gandhaka dusted over

silk cloth.

- Silk cloth should be unwrapped from the pottali immediately after the completion of the procedure in warm state.
- Pottali should be scrapped by the blunt edges of knife to remove the outer layer of Gandhaka on it.

Confirmation of Paka:

Pottali become so hard that when banged against the pot produce metallic sound. Molten sulphur turned to reddish brown and to almost black and catching of fire.

Conclusion

Pottali kalpana can be understood as a specific pharmaceutical technique which is intended for keeping different constituents in their processed, purified, incinerated & sindhoora form into unique complex formula. This specific technique developed for potentiating the constituents, stabilizing firm bonding between the constituents forming a coordinating complex with high therapeutic actions.

When the constituents are individually prescribed, naturally the recipe becomes more potent. When all these constituents, kept in a complex form with suitable samskar, dose can be minimized with wide spectrum of therapeutic actions.

Reference :

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- 5.Rasa Chi. Rasa Chintamani
- 6.R.S.S. Rasendra Sara Sangraha
- 7.Bhavaprakash Nighantu
- 8.Rasa Koumudi
- 9.R.K. - Rasa Kamadhenu
10. Y.R. Yoga Ratnakara
- 11.R.Y.S. Rasa Yoga Sagara
- 12.Bharat Bhaisajya Ratnakara
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- 14.S.B.M.- Siddhha Bhesaja Manimala
- 15.R.S. Rasayana sara
- 16.Va. Chi- Vaidya Chintamani.
- 17.Rasamrita.

Useful Websites for Ayurvedic Physicians

Mrs. Krutika Bagade

The internet is computer based global information system. It is composed of many interconnected computer networks. Each network may link thousands of computers enabling them to share information. Internet has brought a transformation in many aspects of life. It is one of the biggest contributors in making the world into a global village. Use of internet has grown tremendously since it was introduced. It is mostly because of its flexibility. Nowadays one can access the internet easily. Most people have computers in their homes but even the ones who don't, they can always go to cyber cafes where this service is provided.

Internet developed from software called the ARPANET which the U.S military had developed. It was only restricted to military personnel and the people who developed it. Only after it was privatized was it allowed to be used commercially.

Internet has developed to give many benefits to mankind, the access to information being one of the most important one. Students can now have access to libraries around the world. Some charge a fee but most provide free services. Before students had to spend hours and hours in the libraries but now at the touch of a button students have a huge database in front of them.

Internet has brought new opportunities to government, business and education. Governments use it for various processes such as distribution of information and internal communication. Business houses use it to sell and buy products online and also to interact with other businesses. New business opportunities have sprouted because of the internet. Auctions take place and sites like e-bay, provide the opportunity for everyone to put their things on auction. There are billions of websites and searching the right information we need becomes a big task.

We, at KT Softech solutions, have chalked down a few of useful websites for every ayurvedic physician. We recommend these sites as out of the thousands of websites for each subject, these are more user friendly and have the basic information which you need. These websites are useful for Ayurveda Scholars, Students and even Practicing physicians.

Search engines:

A search engine is an individual choice. Search engine decides the information you seek. Always try to be specific while searching anything. Example, if you wish to search info about a drug, say Vasa, you should type the latin name and the info you seek, so the search word would be "Adhatoda vasica + research papers", "Adhatoda vasica + photos", "Adhatoda vasica + uses". Search words should be short and to the point. Right search words will lead you to right websites and long words or sentences will waste your time. You can also search for specific format like WORD or POWER-POINT, or PDF, type Adhatoda vasica + pdf, Adhatoda vasica + word, Adhatoda vasica + ppt. Google is the fastest and best search engine, but lists out promotional websites during a search, which, sometimes is irritating. People who wish to see only a search bar should always go for Google, for cricket fans and people wishing to see different news, stock quotes, etc. go for Yahoo or Rediff. Yahoo's international site gives the option of Video search, which is not present with any other search engine or even the Indian version of Yahoo. Altavista is a good search engine for people finding news or who wish to search Spanish or French information. Image search is an option with most of the websites, which is useful for finding photos of drugs or any disease. These are the following search engines which we recommend.

www.google.com.

www.yahoo.com.

www.khoj.com.

www.rediff.com.

www.altavista.com.

www.askjeeves.com.

www.goto.com.

E-Mail services:

There are many websites providing email facility, but GMAIL is the best as it has unlimited space, many features like 5 mb attachment, search options, spam folder option, etc. it is also linked with ORKUT and YOUTUBE, which enables the user to switch between these sites without typing the user name and password each time.

www.gmail.com.

www.yahoo.com.

www.hotmail.com.

DE (COMP), BE (IT)

OWNER OF KT SOFTECH SOLUTIONS, PUNE.

Government's ayurved-related websites:

There are many government websites which are useful for ayurvedic doctors. State-wise websites give information about current job openings in government sector. AYUSH, CCIM give the complete details of list of recognised colleges, their grades, the drug acts and laws related to ayurvedic colleges and pharmacy.

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[www.helpline1law.com/docs/THE_INDIAN MEDICAL, DEGREES ACT, 1916](http://www.helpline1law.com/docs/THE_INDIAN_MEDICAL_DEGREES_ACT_1916) (laws for BAMS practise).

www.passport.gov.in (for online registration of passport).

Law sites:

www.india-laws.com.

www.lawinfo.com.

www.lawsinindia.com.

www.vakilnol.com.

www.indiaproertylaws.com.

www.courtsjudgements.com.

Ayurveda Universities:

www.bhu.ac.in (Benaras Hindu University).

www.ayurveduniversity.com (Gujrat Ayurved University).

www.keralauniversity.edu/ayurveda.htm (Kerala Ayurved University).

www.rguhs.ac.in (Rajiv Gandhi University, Banglore)

www.tmv.edu.in (Tilak Maharashtra University offers diploma courses).

www.ignou.ac.in (Indira Gandhi Open University distance learning).

Free Advertisements:

The best Advertising for individual clinic, shop, pharmacy, buy, sell products or even for getting an employee for your hospital or college, is www.clickindia.com. This site has a very large database and you can advertise here free of cost. You get instant responses for whatever you are looking for.

Research Papers on Ayurveda:

Research papers and useful collection of ayurvedic plants and Rasadravyas can be found in many websites, but these websites are a boon to Ayurvedic scholars doing their thesis and who always have difficulty getting cross references for their research work. You can even

submit your research paper online at these sites:

www.ijaronline.com.

www.ncbi.nlm.nih.gov.

www.researchayurveda.org.

Job sites for ayurvedic doctors:

There are a number of jobsites, but very few list out jobs for ayurvedic doctors. Following are few of them:.

www.naukri.com.

www.monster.com.

www.clickindia.com.

www.sapraayurveda.com/vacancies.html.

www.ayurdoctor.com.

www.ayurvedaconsultants.com.

www.ayurvedamritham.blogspot.com .

Buy and Sell ayurvedic drugs:

Buying and selling ayurvedic drugs has become very easy. We should remove the fear of getting problems by online transaction because nowadays every website links with online portal of banks. It is very secure and safe. Following are the best websites to buy or sell ayurvedic products.

www.herbalcureindia.com (buy Zandu, Dabur or even Ramdev Baba's Pharmacy products, DVDs, CDs, etc.)

www.maharashtradiratory.com (Maharashtra state directory of traders in raw drugs of Ayurveda).

www.ayurveda-herbal-remedy.com.

www.himalayahealthcare.com (for Himalaya pharmacy products).

www.ayurvedicdrugindex.com (ayurvedic drug list)

Buying ayurved-related equipments:

www.indiamedico.com (for buying Panchakarma equipments, tables, swedana instruments, etc.).

www.pharmamachines.in (for buying equipments for Pharmacy setup).

Ayurvedic books & modern books:

Buying books online is costlier, as they charge almost Rs.500-600 extra for shipping, but few books may not be available at book shops, following are the sites where you can get the books you want. Comparing the price before buying any book is advisable because sometimes, you may get book cheaper, buying online.

www.vedicbooks.net.

www.aggarwaloverseas.com .

www.amazon.com.

www.medicalbooks.in.

www.biblion.co.uk (second hand books).

www.abebooks.com (this website has second hand books also).

www.mumbaibookmart.com (non-medical related books, novels).

Travel and Ticket booking:

Doctors love to travel and love to entertain themselves. These are few websites which are useful to buy tickets online. From airline tickets to railway and even Movie tickets can be bought by just a click of a button.

www.makemytrip.com (from hotel booking to air-bus-taxi booking, a very good website and gives many options. Trip can be planned according to the budget and provides many discounts on air ticket and hotel bookings. We can even gift a holiday plan through this website at a cheaper rate than what we imagine).

www.bookmyticket.com (for movie tickets)

www.irctc.co.in (for railway booking, very good website, but the only problem is that this website hangs while doing TATKAL bookings, so for doing Tatkal booking, either wait for on the railway booking window from 3 a.m. in morning or just catch a good agent or plan your trip 1-2 months in advance).

Free software download, essential for ayurvedic doctors:

There are few softwares, which are really essential for internet surfing and for opening few file types. These files are available free and are helpful for thesis work also.

www.baraha.com/download.htm (Baraha is a user friendly software, available free and useful to type Sanskrit Shloks, also available in Kannada, Punjabi, Telgu languages. The English typing is converted into the choice of language, which can be copied to word or powerpoint files).



"That's my diagnosis. If you want a second opinion, I'll ask my computer."

www.mozilla.com/firefox (faster than internet explorer, is the most popular web browser).

www.adobe.com (Adobe reader, Adobe Flash Player are mandatory to see few web pages and pdf files).

www.doctorslounge.com (contains useful softwares for medical professionals, like medical dictionary, free for downloading).

Mobile useful website:

www.way2sms.com (send free unlimited sms through internet).

www.zedge.net (for mobile themes, wallpapers, ringtones, etc.).

Website designing:

Website has now become the 'identity card' of an individual. Getting your own website has become easier and cheaper. Reaching the whole world through a small computer screen has opened infinite possibilities of small to big business. Design a simple website, in your own budget.

www.ktsofttech.com.

There are thousands of useful websites and a very vast scope for opportunities globally. Internet is a sea of Knowledge and using it properly can benefit everyone. Internet and computers have become very cheap unlike the past, when computer was considered just a luxury. From just Rs.15,000, a good computer and just Rs.200 per month for Internet, it is affordable. Literacy will soon be judged by the computer skills of a person.

We have to be Computer literate rather than be Computer Illiterate.



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AYURVEDA NEWS

Collection From:- Co-Editors

Protecting India's Traditional Knowledge from Patent Piracy:-

The government of India has granted the European Patent Office (EPO) access to its Traditional Knowledge Digital Library (TKDL). Loaded with ancient medical knowledge, the online database contains translations of manuscripts and textbooks in five languages, including English. Traditional Indian medicines, comprising some 200,000 formulations, should from now on be safe from pirate-patenting in the west. Close to 2000 wrong patents of medicines prescribed under the Ayurvedic, Unani and Sidha systems are still being granted annually at the global level, causing financial loss to India. The most blatant examples are the grant of a patent on the wound healing properties of turmeric in 1995 by the US Patent and Trademark Office, and on the anti-fungal properties of neem granted by the EPO. Now, after over eight years of work by a team of over 200 scientists TKDL has been made available to the patent examiners from the EPO and its 34 member nations. With the TKDL, patent examiners can now compare patent applications to existing traditional knowledge documented in this new source. Examiners can limit the scope of a patent or reject it altogether before it is granted. This can prevent lengthy and costly opposition procedures.

Ayurveda to assist increased revenue generation in Sri Lanka:-

Ayurveda 2009, the International Ayurveda Exhibition and Symposium organised by the National Chamber of Commerce of Sri Lanka (NCCSL) was held at the BMICH from May 23-25, with many Sri Lankan and international participants. The exhibition was ceremonially declared open by Prime Minister Ratnasiri Wickremanayake on May 23, in the presence of local and foreign dignitaries. The Prime Minister mentioned that developing local industries such as Ayurveda is a priority of the government; he would extend his fullest support to make Ayurveda a key contributor to the GDP.

250 ayurveda-related manuscripts digitised PUNE :-

A Hyderabad-based ayurveda institute has digitised about 250 manuscripts on ayurveda which are currently archived at the city-based Bharat Itihas Sanshodhak Mandal. For this purpose, the Indian

Institute of History of Medicine (IIHM) in Hyderabad had sent a team of five research scholars to digitise the manuscripts. The work which began on April 24 winded up on May 13.

The manuscripts date back to the 15th century right through to the 19th century, and are written in Marathi, Modi, Sanskrit, Bengali, Kannada, Urdu, Persian and Hindi. "The manuscripts are very informative regarding various issues related to health, for instance, proper eating habits, effective herbal medicines and concoctions and the like. The digitised versions of these documents will be used for further study by the Hyderabad-based institute," said research scholar Bhujan Bobade, who is coordinating the digitisation process for the five-member team. He is currently associated with Hyderabad-based Andhra Pradesh Manuscript Library and Research Institute (APMLRI).

Five Assam districts to grow medicinal plants:-

Medicinal plants in Assam will now have an assured market. The National Medicinal Plants Board has approved a Rs 7,77.73 lakh-project for "conservation, development and sustainable management of medicinal plants". The three-year project will involve plantation of different medicinal plants on 2,000 hectares in five districts Kamrup, Nagaon, Chirang, Dibrugarh and Cachar. The members of the joint forest management committees will execute the project. The chief conservator of forests (research, education and working plans) of Assam, R.P. Agarwalla, today said this is the largest ever project approved in the medicinal plants sector for the state. It will help the sector to grow commercially, he added. The National Medicinal Plants Board, set up in November 2002 by the Centre, has the primary mandate of co-ordinating all matters relating to medicinal plants and support policies and programmes for growth of trade, export, conservation and cultivation. The board is located in the department of ayurveda, yoga and naturopathy, unani, siddha and homeopathy (AYUSH) of the Union ministry of health and family welfare.

Pharmacopoeia commission for traditional medicine approved:-

New Delhi, May 13 (IANS) The cabinet Thursday sanctioned Rs.14.08 crore for establishing a pharmacopoeia commission for traditional medicine to set and maintain standards in the sector. "The union cabinet today approved the establishment of a

pharmacopoeia commission for ayurveda, yoga and naturopathy, unani, siddha and homeopathy (AYUSH)," Information and Broadcasting Minister Ambika Soni told reporters after a cabinet meeting chaired by Prime Minister Manmohan Singh. "It is estimated that the global market for traditional and herbal medicines is worth \$62 billion, of which China's share is \$19 billion. India still has a long way to go to increase its share and the establishment of the pharmacopoeia commission for AYUSH is a very important step in this direction," Soni explained. The cabinet also sanctioned Rs.14.08 crore to be spent over the next two years on establishing the pharmacopoeia commission, an official said. "It is envisaged that the commission will become self-reliant in five years," the official said.

Apollo Hospitals to conduct research in ayurveda:-

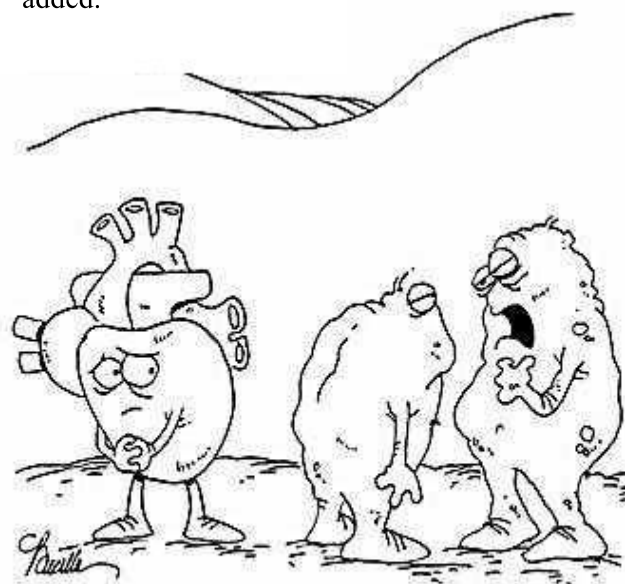
New Delhi, March 14 (IANS) Ayurveda, the traditional Indian system of medicine struggling to get due recognition owing to its inadequate scientific validation, has now found a new patron in Apollo Hospitals. The chain will carry out research to establish ayurveda as potent system of medicine worldwide.

"The Indian system of medicine has faced many roadblocks due to lack of enough research. We are set to carry out scientific study on ayurveda and other systems of medicine," Prathap C. Reddy, chairman of the Apollo Hospital chain, told IANS. He said many countries like the US have claimed that several Indian medicines have heavy metals beyond the permissible limit. Many also claim that these treatments are not backed by scientific validation. "Here, we are taking it up. We will conduct

research in our hospitals across India and come up with a database. After that we will offer willing patients these treatments," Reddy added. He said Apollo has already tied up with a leading ayurveda house in Kerala. "Once we provide the scientific validation, we will set up a chain of ayurveda centres to provide treatment for patients," Reddy said.

Climate change affecting ayurveda, says President Patil:-

New Delhi, Oct 7 (IANS) President Pratibha Patil Wednesday said climate change poses a huge challenge for ayurveda and expressed concern that it is the reason for many medicinal plants vanishing from the country. "Due to climate change, natural habitat is moving towards an imbalance. Because of it a lot of medicinal plants are vanishing. This is a huge challenge for us," Patil told a gathering of ayurveda practitioners here. "To face this, we need to make a concerted effort. We need to categorize these vanishing medicinal plants and make efforts to replant them. In this work you can take the help of institutions like National Medicinal Plant Board," the president said. Patil was the chief guest at the centenary celebration of the All India Ayurveda Congress. During her speech, she advocated for proper research and registration ayurveda to popularise them further both in India and abroad. "I have always advocated for ayurveda during my foreign trips. The preparation process, I believe, should not be changed while increasing the output of these medicines. Its real essence in medicine making needs to be preserved," she added.



Unforgettable Moments

