

CARING FOR THE REVERRED

Indian culture has always taught us to respect our elders especially old age people. There is a great wealth of experience and wisdom that our elders possess, because of trials and tribulations undergone during their lives. With improvement in diet and progress in medical field, the average life expectancy of human race has increased throughout the world.

According to an estimate, in 2002 the number of people above 60 years in India was 8% of population which is likely to increase to 21% by 2050 and those above 80 years which was 8% in 2002 is again likely to increase to 15% of population by 2050. In India as per 2011 statistics, out of 81 million elderly persons 51 million are poor. The advancing age and poverty are posing a very potent challenge to medical fraternity and to the state and union governments. The branch of medical science for dealing with problems of old age is called GERIATRICS.

The term Geriatrics comes from greek term 'geron' meaning old age and 'iatros' meaning healer. Geriatrics or geriatric medicine is a subspeciality of internal medicine that focuses on health care of elderly people. It aims to promote health by preventing and treating the disabilities of older.

Common Problems in Old age

The decline in physiological reserves in organs make the elderly prone to develop many kind of diseases and they have more complications from mild problems. Multiple problems may compound. A mild fever in elderly persons may cause confusion, which may lead to a fall and to a fracture of the femur. Elderly people are prone to develop many problems. Common among these are....

- Visual impairment and vision loss (There are 8.1 million blind people in India out of which 6.5 million are due to cataract)
- Psychological and Neurological ailments like depression, Alzheimer's disease, schizophrenia, dementia, parkinson's disease etc.
- Impaired intellect and loss of memory and cognitive function
- Orthopedic problems: Osteoarthritis, Rheumatoid arthritis, Osteoporosis and fractures due to Hypocalcemia.
- Cardiological and Respiratory diseases : COPD, Bronchial Asthma, IHD, Hypertension, Atherosclerosis, CHF, Cardiomyopathy etc.



- Urogenital Diseases: Benign hypertrophy of prostate, sexual debility, urinary incontinence, UTI, CRF, Malignancy of urogenital system.
- Gastrointestinal and skin problems: Gastritis, Flatulence, Constipation, CLD and skin diseases like itching dryness, fungal infections etc.

In addition to above, old age persons are prone to all other diseases being faced by young with more severity and they are more difficult to be treated. Impaired vision and hearing loss are common chronic problems among older people. These can lead to social isolation, depression and dependence as the person can no longer see and talk to other people, receive information on phone or engage in simple transactions such as talking to a person in store or bank or falling down because of tripping over unseen objects, medicines being taken incorrectly and finances being mismanaged because of vision problems.

Polypharmacy: Elderly people require special attention to medications. They are particularly subjected to polypharmacy (taking multiple medications). Some elderly people have multiple medical problems for which they have to take many medicines. In addition to this they are prone to accept advices from all types of persons, hoping to get some magical potions or medicines for their never ending problems. This may lead to drug interactions or adverse drug reactions.

Menopausal problems in women are very troublesome. They may cause great inconvenience, mental tension, depression and even suicidal tendencies. In addition different types of malignancies are also common in old age.

Pharmacology:

Pharmacological constituents and regime for older people is very important issue, one that is related to changing physiology and psychology. Changes in physiology with ageing can alter the absorption, effectiveness and side effects profile of many drugs, distribution of drugs with changes in body fat and muscle and drug elimination.

Psychological considerations include the fact that

elderly persons (in particular those experiencing substantial memory loss or other types of cognitive impairment) are unlikely to be able to adequately monitor/adhere to their own scheduled medicinal administration. Improper administration of medicine may lead to many complications.

Management: The problems related to health of older people are plenty and it requires a vast infrastructure, trained personnel, huge amount of money and social and family support to take care of them. Most important of all the problems of elderly is regarding vision. Screening camps should be held in rural and urban areas with the help of NGO's to identify and treat cataract cases at the right time, To improve the fate of elders blinded by cataract.

In order to detect and treat our elders suffering from chronic diseases like hypertension, diabetes mellitus, cardiovascular disease, cancer etc., primary prevention and treatment strategies at PHC's should be instituted. Those who need secondary and tertiary care facilities must be provided separate facilities in secondary and tertiary care hospitals.

A special team of personnel trained in geriatric care should be made to provide home care to the disabled elderly population. This strategy has been demonstrated to be successful in community based project in Cochin known as "Urban Community Dementia Service", where these health workers provide home based care in day care centres.

THE GOAL OF LIFE IS TO DIE YOUNG, AS LATE AS POSSIBLE

Every man desires to live a long happy and disease free life as far as possible.

World is changing from young to old world because of incorrect lifestyle and bad dietary habits. In Ayurved old age is called 'jara' and it is of two types. 'Kalaj jara' and 'Akalaj jara'. 'Kalaj jara' (chronological age) comes at the proper age inevitably even after following the daily and seasonal routines. 'Akalaj jara' (premature ageing) is that comes before it's prescribed time, due to improper care of personal hygiene, lack of exercise, malnutrition and hereditary diseases etc.. This is biological ageing. In addition to causes related to diet and wrong lifestyle, Akalaj jara occurs due to disturbed psychological and mental health. Factors responsible are mental causes like Bhaya (Fear) Krodh (anger) Shok (sorrow) Lobh (greed) Moh (affection) Ruksh vani (harsh words) Kalah priya bharya (quarrelling wife) and Kuputra/ kuputri (maladroit children) There are three categories of chronological age;

- Young old (age 65-74) Set old age
- Middle old (75-84) Old old age
- Old old (85 and older) Ripe old age

The very first step to delay the problems related with old age is to prevent old age. One should adopt a lifestyle which is conducive to good health i.e a balanced diet full of essential nutrients, vitamins, minerals and iron which is available from sufficient intake of fruits, vegetables and cereals regularly. One must perform regular exercise (Aerobic) in the form of walking, jogging, cycling, swimming, yogic exercises and Pranayama. It is imperative to be Truthful, Refrain from anger, Calm headed, Vegetarian, Observe good moral character, Have contentment, Be nonviolent, Kind hearted and not take any Addictive substances.

Management of Akalaj Jara

Aims of Management are;

1. Countering the adverse effects resulting from old age
2. Managing the physiological changes which are hampering the routine life.
3. Countering the pathological disorders.
4. Adjustment to family and social needs.
5. Adjustment to psychological needs.

Ayurvedic Answer to the Problem

Ayurvedic system of medicine gives priority to prevention of diseases and preservation of health, before attempting to cure the disease. In case of old people also. Ayurved firmly believes that they must be advised to adopt a healthy lifestyle in younger age itself, so that they do not suffer from diseases of old age. In order to fulfill this motive Ayurvedic sages and physicians have illustrated the method in a sapa.

“Labhopayo Hi Shastanam Rasadinam Rasayanam”

“Yajjara Vyadhi Vidhvansi Tat Vrishyam Tat Rasayanam”

“Rasasya Ayanam Rasayanam”

Some important Rasayanas described in Charak Samhita and other ayurvedic treatises are as given below :-

Brahma Rasayan (ideal choice), Ashwagandha Rasayan; Chayavan prash; Triphla rasayan; Kapikachu rasayan; Shilajatu rasayan; Amlak rasayan; Amlak ghrit; Bala rasayan; Bala ghrit; Khadir rasayan; Amrita rasayan; Yashtimadhu rasayan; Bhallatak sarpi rasayan; Shankhpushpi rasayan ; Pippali rasayan; etc.

Rasayan Drugs for Specific Disorders

1. Medhya rasayan; Mandukparni; Yashtimadhu churan; Giloya swaras; Shankhpushpi with milk; These drugs have psychotropic and hypotensive effects as well.
2. For diseases of Eye ; Jyotishmati; Triphla; Shatawari; Yashti madhu Amalki; Saptamrut loh; Netar tarpan; etc.
3. Diseases of heart ; Pushkarmool; Arjun; Guggulu; Shalparni;
4. Skin Diseases; Bhallatak; Haridra; Vidang; Bakuchi;
5. Arthritis; Amrit bhallatak ;
6. Asthenia; Pippali; Shilajatu; Rason;
7. Urinary Disorders; Shilajatu; Haridra; Amalki;
8. Obesity; Haritki ; Guggulu;

Treatment of diseases in old age

The diseases in old age are to be treated with general principles of treatment according to individual disease, but with precaution and keeping in view prakriti, age, bal, Aushadh satmya etc. of the patient. Old age persons must not be given medicine containing heavy metals even if these medicines have to be given, they must be given in short courses of 7-15 days and there should be a gap of 15 -30 days between the courses, while other non heavy metallic medicines are continued.

CCRAS has undertaken extensive research and advises the physicians of Ayurved to treat patients with proved 'EVIDENCE BASED MEDICINES'. Some of researches done by CCRAS which can be very useful for elderly patients are as follows;

Researches done by CCRAS

1. Rheumatoid Arthritis: Ashwagandha churan; Erand tail; Shunthi gugg. and godanti; Vaishnavar churan; Mahayograj gugg. and Sinhnaad gugg.;
2. Osteoarthritis: Shallaki gugg. With or without NSAIDS.
3. PIVD: Guggul conc. Extract.; Vaitarn vasti and Patrapind sved.
4. Antianginal and Hypolipidemic drug: Pushkar gugg.
5. Lekhan vasti in IHD.
6. Arjun kwath and kshirpak in hypertension and LVH.
7. Arjun vachadi churan in hypertension.
8. Guggulu in Hyperlipidemia.
9. Kantkari decoction in Tamak shwas.
10. Shirish twak kwath in Tamak shwas.
11. Picorrhiza kurrora in COPD.
12. Vibhitak phal churan in Kas and Shwas

13. Brihati and Kantkari in Shwas and Kas.
14. Vijaysar in NIDDM.
15. Coccinia indica for Hyperglycemia and Hyperlipidemia.
16. In Diabetic Retinopathy: Dhanwantar kwath, Punarnawasav, Chandarprabha vati and Nisha amalki with Patoladi ghrit.
17. Ayush 82 for Hyperglycemia.
18. Kamla: Punarnava mandoor and Arogyavardhini vati.
19. Parinamshool: Narikel lavan and Tiktak ghrit.
20. Grahani rog; Kutaj chaal and Babul beej; Bilv majja and Shvet jirak;
21. Hepatoprotective agent : Bhumi amalki (Phyllanthus amarus)
22. Grahani Rog: Panchamrit parpati.
23. Psychoneurological disorders: Satvavajya and Panchkarma therapy.
24. Anti anxiety: Brahma Rasayan.
25. Anxiety and Depression: Ashwagandha and Kapikachu.
26. Depressive disorders: Guduchi, Mandukparni and Basant.
27. Senile dementia: Brahmi 1 gm. Powder extract.
28. Anti stressor agent: Ashwagandha powder.

Surgical Problems.

1. Piles and Fistula: Kshar sutra therapy
2. Haemorrhoids: Kankayan vati, Kravyadi ras, Abhyarisht, Triphla churan and kasisadi tail
3. Haemorrhoids: Kravyadi ras, Triphla churan and kasisadi tail vasti.
4. Fistula in ano: Kshar sutra insertion.
5. Tikshan Kshar sutra made by Apamarg, plash and kutaj is more successful due to rapid cutting than standard Kshar sutra.
6. Mutar ashmari : Pashanbhed , Gokshur and shvet parpati. Plash kshar 1 gm. Tds

Details of the above mentioned researches can be seen on the website of CCRAS

As above mentioned formulations are based on evidence, they can be used with more confidence and better results can be seen in geriatric patients. Medicinal treatment of our revered elders covers only one of their manifold problems, They deserve to be cared for with love, respect, affection and devotion in their homes as well as in the society.

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Concept of efficacy of *Shirodhara* in the psychological problems due to ageing w.s.r. to *Avasada* (depression)

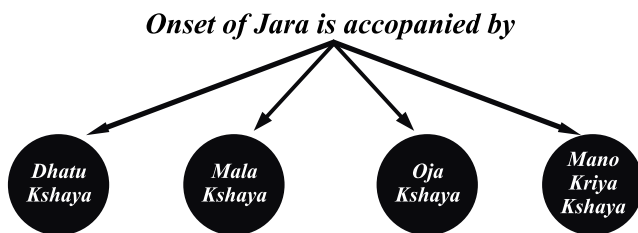
*** Dr.Suryanshu Dutt Sharma** Prof.Y.K.Sharma *** Dr. Vijay Chaudhary**

Abstract:

In Indian culture and tradition there is much more importance given to elderly people and according to 2011 census 7.7% of total population is above 60 years. Many of them suffer from psychological problems due to Mental changes, Breakdown in family values and Support, Economic insecurity, Social isolation. Mental disorders include dementia and mood disorders. Depression (Avasaad) comes under mood disorders which is characterized by disturbance in regulation of mood and behavior. Depression can be graded in elderly people by geriatric depression scale (GDS). In Ayurvedic management of depression, Shirodhara is one of the most effective treatment for reducing stress and depression. Shirodhara works primarily on mental sheath. Medhya drugs used for shirodhara as Brahmi, Sankhpushpi, Jatamansi etc. has been proved to have good effect on depression. Shirodhara has been traditionally shown to help with fatigue, mental exhaustion, depression, anxiety, insomnia, and many other conditions affecting peoples in today's active lifestyle.

Introduction:-

Aging is a natural process. Sir James Sterling Ross commented:- **“You don't heal old age. You protect it; You promote it; You extend it.”** Old age should be regarded as a normal inevitable biological phenomenon. According to Ayurveda Jara is a state of becoming Ksheen (debilitated) physically, physiologically and psychologically as a result of old age usually after 65 years.



Importance of Jara-Chikitsa

Discoveries in medical science and improved social conditions have increased the life span of man. In India too although the percentage of older persons to the total population is low nevertheless, the absolute size of aged population is considerable and they have much more importance in our life. According to the 2011 census 7.7 per cent if total population were above the age of 65 years.

Causes of Psychological Problems In Aged People

- Rapid urbanization and societal modernization has brought in its wake a breakdown in family values and family support
- Economic insecurity
- Social isolation

- Elderly abuse
- Due to loss of job through retirement
- Often loss of some degree of health, loss of vigor
- Change in medical and physical condition
- Development of cognitive deficit

● **Mental changes** : Impaired memory, rigidity of outlook and dislike of change are some of the mental changes in the aged. Social maladjustment can result in bitterness, inner withdrawal, depression, weariness of life, and even suicide.

According To Ayurveda

Out of 16 prakriti, Rajasika & Tamasika prakritis are more prone to psychosomatic disorders due to excess of Roshā Ansha & Moha Ansha respectively. In Sharirik Prakriti, Paittitka & Vatika Prakriti are more prone as their Manasa is easily affected by krodha, kshobha etc. as compare to Kaphaja prakriti. (Ch.Vi. 8/96 - 98) Some degree of stress is must for human development but when this threshold breaks, that leads to Anxiety (Chittodvega), depression (Avasada), fear (bhaya), jealousy (Irshya) and many more Manas Vikara, resulting in many Psychosomatic disorders.

Depression

It is the feeling of intense sadness. After anxiety, depression is the most common mental disorder. As we have seen earlier it commonly affects the elderly. It has been put under mood disorders which are characterized by a disturbance in the regulation of mood, behavior and affect. Depression is characterized by

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melancholic feeling of sadness, hopelessness, pessimism, lack of interest in social activity, inability to concentrate, both insomnia & frequent excessive sleeping, loss of appetite & ravenous appetite.

Diagnosis

Requires presence of a depressed mood for at least 2 consecutive weeks along with at least 4 of the following 8 symptoms-

- * Sleep disturbance
- * Lack of interest
- * Feelings of guilt
- * Decreased energy
- * Reduced concentration
- * Decreased appetite
- * Psychomotor agitation or retardation
- * Suicidal tendencies

Ayurvedic Management

The management of a psychiatric patient in Ayurveda is done through 3 broad streams of therapy

- * *Daivavyapasraya chikitsa*
- * *Yuktivyapasraya chikitsa*
- * *Sattvavajaya chikitsa*

The Daivavyapasraya chikitsa includes the use of mantra, japa and other religious activities and wearing of precious stones etc. Sattvavajaya is psychotherapy incorporating the principals of assurance therapy, replacement of emotions and psycho shock therapy. In biological therapy or Yuktivyapasraya chikitsa, Panchakarma along with palliative treatment with drugs, dietetics and lifestyle changes are used.

Use of Medhya Drugs : - Medhya Dravya inculds Brahmi (Bacopa Monnieri), Shankapushpi (Convolvulus pluricaulis), Mandukparni (Centella asiatica), Jatamansi (Valeriana jatamansi), Ashwagandha (Withania somnifera). Brahmi has shown significant improvement in general mental ability and behavioral pattern. It has the potentiality to regulate altered level of brain biogenic amines and improve learning abilities. Increased acetylcholine synthesis is seen after Brahmi supplementation which has improved memory and elevated mood, prevent memory loss in old people. Shankapushpi has shown anti-anxiety, hypotensive and mental function improving property. Jatamansi's active principle has been shown to improve sleep quality and reduce blood pressure. Ashwagandha's use can make significant reduction in the level of anxiety, maladjustment, mental fatigue & immediate improvement in memory span.

Shirodhara

Shirodhara an ancient Ayurvedic healing procedure practiced in India for over 5,000 years. Shirodhara and medhya dravyas together form a concept that aims to bring physical and emotional balance by rejuvenating the spirit and preserving health. This is achieved through a relaxing technique in which warmed oil is poured over a client's forehead for an extended period of time. Shirodhara works primarily on the mental sheath. Shirodhara is traditionally used to calm the nerves, harmonize vata constitutions, restore the nerves, release stored emotions, and purify the mind. It has been traditionally shown to help with fatigue, mental exhaustion, anxiety, insomnia, some mental disorders, nervousness etc.

Benefits of Shirodhara :

- Enhances blood circulation to the brain
- Improves memory
- Nourishes hair and scalp
- Assists in providing sound sleep
- Calms the body and mind.
- Shirodhara is one of the most effective treatments for reducing stress and nervous tension.
- Ultimate mental and emotional relaxation therapy
- Disperses negative electrical impulses that accumulate at the skull and hairline from stress.
- Beneficial for many diseases connected with the head, neck, eyes, ears, nose and throat.
- Beneficial for many diseases of the nervous system like nerve disorders, facial palsy, paralysis and ptosis (drooping) of the eyelids
- Beneficial for curing chronic insomnia and schizophrenia
- Beneficial for fits in epilepsy when used in conjunction with other medicines.
- Nourishes and rejuvenates the body
- Increases spiritual awareness
- Regulates mood and depression disorders
- It improves concentration, intelligence, confidence and self-esteem
- Stimulates the nervous system giving sturdiness to the body.
- Invigorates the body and mind and stimulate cognitive memories
- Helps in relieving fatigue, tension, anxiety, anger, chronic headaches, rheumatism, hypertension, asthma, hair problems and stress.

Conclusion :-

According to previous many studies and conceptually we can say that, Shirodhara has a great effect on Avasada (Depression) and other Psychological disorders.

A Clinical Study to evaluate the efficacy of a herbal formulation 'Kulthyadi Guda' in the management of Shwasa Roga with special reference to COPD.

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Abstract:

Introduction and Objective: At present, many airway disorders are increasingly seen all over the global population. Alarming rise in the prevalence of Chronic Obstructive Pulmonary Disease (COPD) can be accounted to factors such as atmospheric pollution, rapid environmental changes, adaptation of newer dietetic preparations and tremendous psychological stress. In Ayurveda literature description of 'Shwasa roga' is available. Cardinal feature of Shwasa roga is breathlessness. In the present era, number of remedies are in practice for the management of COPD. In modern science, many drugs are in use and steroids are also being used to control symptoms but these drugs are having many side effects. Present clinical study is planned to evaluate the efficacy of a herbal formulation 'Kulthyadi Guda' and Yogic Breathing Exercises in COPD patients.

Method: The present study was open, single blind and double group in nature. Total 23 COPD patients were selected for this study and they were randomly divided into two groups i.e. Group-I and Group-II.

In Group-I: Patients were managed with Kulthyadi Guda in a dose of 400 mg./kg. per day in two equal divided doses. Haritaki Churna was also given in the dose of 5 gm. at bed time for the purpose of Kostha Shuddhi.

Group-II: The patients in this group were given Kulthyadi Guda in a dose of 400 mg./kg. per day in two equal divided doses along with Yogic Breathing Exercises for 20 minutes in morning and evening time. Haritaki Churna was also given in the dose of 5 gm. at bed time for the purpose of Kostha Shuddhi.

Duration - 45 days.

Patients suffering from COPD were included in trial. Diagnosis was mainly based on clinical features and spirometry and patients were selected irrespective of caste, sex, race and religion. Assessment of the effects of therapy was done on the basis of various objective and subjective criteria. Effects of therapy on various haematological and spirometric parameters were also assessed.

Results: In both groups the effect of therapy showed statistically significant reduction in subjective features. All functional criteria were statistically significantly improved in group-I except pulse rate. On the other hand including pulse rate all functional criteria were statistically more significantly improved in group-II. Base line hematological parameters remained within normal limits before and after the therapy in both the groups. Effect of therapy showed statistically insignificant improvement on spirometric parameters in both groups.

Conclusions : Kulthyadi Guda along with Yogic Breathing Exercises has been proved to improve the ventilatory functions as well as subjective symptoms of the patients of COPD. Thus it can be concluded that the combination of Kulthyadi Guda and Yogic Breathing Exercises could be used effectively in the management of COPD. No adverse effect of the therapy was observed during the trial period.

Key Words: Shwasa Roga, COPD, Kulthyadi Guda

Introduction:- At present, many airway disorders are increasingly seen all over the global population. COPD is at the top in this list. It calls the attention of medical world due to significant burden in terms of health care costs as well as lost productivity and reduced participation in family life. This alarming rise in the prevalence of COPD can be accounted to factors such as atmospheric pollution, rapid environmental changes, adaptation of newer dietetic preparations and tremendous psychological stress. The clinical manifestations show high recurrence pattern. Therefore, the management

criteria should be addressed to quality improvement in the life of patients.

In Ayurveda literature description of 'Shwasa roga' is available. Cardinal feature of Shwasa roga is breathlessness. The disease has been given utmost importance in past times and is described elaborately in almost every Ayurvedic text. The study of Ayurvedic literature reveals that vitiated Vata and Kapha Dosha are involved in the pathogenesis of Shwasa. Vitiated vata is chiefly responsible for broncho-constriction ultimately for increased airway resistance; whereas vitiated kapha leads

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to increased broncho-pulmonary secretions, which block the already narrowed airways. These together lead to Shwasa rog, which is chiefly manifested by dyspnoea.

Chronic Obstructive Pulmonary Disease (COPD) remains a major public health problem. It is the fourth leading cause of chronic morbidity and mortality in the United States and is projected to rank fifth in 2020 in burden of disease caused worldwide, according to a study published by the World Health Organization. Furthermore, although COPD has received increasing attention from the medical community in recent years, it is still relatively unknown or ignored by the public as well as public health and government officials. In the present era, number of remedies are in practice for the management of COPD. In modern science, many drugs are in use and steroids are also being used to control symptoms but these drugs are having many side effects. In fact, COPD is an incurable disease. Present clinical study is planned to evaluate the efficacy of a herbal formulation 'Kulthyadi Guda' and Yogic Breathing Exercises in COPD patients, so that the progression of disease can be controlled and hence pts can lead a better life.

Materials and Methods : The present study was open, single blind and double group in nature. Total 23 patients were selected for the study from outpatient department and in patient department of post graduate department of Kayachikitsa (Internal Medicine), a unit of Rajiv Gandhi Govt. Post Graduate Ayurvedic College, Paprola, Himachal Pradesh, India.

Inclusion Criteria :

Selection of the patients was done based on following criterias:-

(i) Symptomatological Criteria

- (a) **Symptoms:** Dyspnoea on exertion, cough with expectoration, wheezes, tightness in the chest and edema.
- (b) **Signs:** Barrel shaped chest, prolonged expiration, pursed lip breathing, central or peripheral cyanosis, use of accessory muscles of respiration, diminished expansion of the chest, reduced air entry and presence of adventitious sounds.

(ii) Radiological criteria

- (a) **Signs of hyperinflation:** Hyper translucent lung fields, low flat diaphragm, increased intercostal spaces and narrow or tubular heart.
- (b) **Signs of bronchitis:** Marked bronchovascular markings.

(iii) Spirometric Criteria: FEV_1 , FVC (L) <70%, $FEV_1/FVC\%$ <0.70

Exclusion Criteria:

- a. Patients having concomitant disorders like diabetes mellitus, severe anemia, ischemic heart disease, pulmonary tuberculosis, congestive heart failure, acute renal failure, chronic renal failure, lung collapse, pneumothorax etc.
- b. Patients with advanced Type II respiratory failure.
- c. Patients below 35 and above 70 years of age.
- d. Patients who were not willing for trial.

Patient grouping and administration of drug: All the diagnosed patients, who fulfilled the inclusion criteria were randomly divided into two groups named as Trial Group-I and Trial Group-II.

Trial Group-I: The patients in this group were given Kulthyadi Guda in a dose of 400 mg/kg per day in two equal divided doses for the duration of 45 days. Haritaki Churna was also given in the dose of 5 gm at bed time for the purpose of Kostha Shuddhi.

Trial Group-II: The patients in this group were given Kulthyadi Guda in a dose of 400 mg /kg per day in two equal divided doses for the duration of 45 days along with yogic breathing exercises for 20 minutes in morning and evening time. Haritaki Churna was also given in the dose of 5 gm at bed time for the purpose of Kostha Shuddhi.

Preparation of trial drugs: Kulthyadi Guda and Haritaki Churna were prepared at college pharmacy of R.G.G.P.G.Ayu. College Paprola.

Ingredients of Kulthyadi Guda:

Sr. No.	Ingredients	Quantity	
1.	Bharangi	100 Pala	5 Kgs
2.	Dashamula	100 Pala	5 Kgs
3.	Kulthi	100 Pala	5 Kgs
4.	Water	3 Dron	48 Kgs
5.	Reduced to (Vol. of Water)	1/4th	12 Kgs
6.	Guda	½ Tula	2.5 Kgs
7.	Prakshepa Dravyas - Madhu	8 Pala	500 gm
8.	- Ela	2 Pala	100 gm
9.	- Tejpatra	2 Pala	100 gm
10.	- Twak	2 Pala	100 gm
11.	- Vanshlochan	6 Pala	300 gm
12.	- Pippali	6 Pala	300 gm

Preparation : The ingredients Kulthi, Bharangi, and Dashmula were coarsely powdered and kept in a vessel. The specified quantity of water was added and mixed to the coarsed powder. The mixture was boiled & reduced to one fourth of total. Then Guda was added and boiled till optimum Paka was achieved. At this stage, the fine powders of Prakshepa Dravyas were added & lastly, Madhu was added when it became cool. (Chakra Datta :12/31-34)

Haritaki Churna : Fruits of Haritaki were grinded to form fine powder.

Duration of Trial: 45 days.

Criteria for assessment: All the patients included in the trial were assessed thoroughly on the basis of different subjective and objective criteria. To give objectivity to subjective symptoms grading/scoring system was adopted. *Grading of power of exertion (100 meters walk), breath holding time and spirometric criteria* was also done.

Overall Assessment Of The Results: It is as follows:

Categories	Subjective criteria	Objective Criteria
Markedly Improved	=40% improvement over its pretrial value	>10% Improvement In FEV ₁ Over Its Pretrial Value.
Improved	20% to 39%improvement	1 To 10% Improvement In FEV ₁ Over Its Pretrial Value.
Not Improved	<20% improvement	<1% Or No Change In FEV ₁ over Its Pretrial Value
Deteriorated	Deterioration in all subjective symptoms	Deterioration In FEV ₁ Over Its Pretrial Value

Data Collection and Statistical Analysis : Data generated from clinical study was collected and analyzed statistically. The improvement in the status of patient was assessed on the grades of various variables compared between pre-trial and post-trial values in terms of percentage (based on mathematical mean and its difference) and the student 't' test was applied wherever it was felt necessary by using degree of freedom value. The results were interpreted at the level of $p < 0.001$ as highly significant, $p < 0.01$ as moderately significant, $p < 0.05$ as significant and $p > 0.05$ as insignificant.

Results :

Variable	Group -I							Group -II						
	Mean Score		% Change	SD	SE ±	t	P	Mean Score		% Change	SD	SE ±	t	P
	BT	AT						BT	AT					
Tightness in chest	2.33	1.00	57	0.87	0.29	4.59	<0.01	2.11	0.22	89.00	0.6	0.2	9.45	<0.001
Breathlessness	3.0	1.67	44	0.52	0.17	8.47	<0.001	3.33	1.44	57.00	0.5	0.17	11.76	<0.001
Cough	2.56	1.44	44	0.78	0.26	4.27	<0.01	3.11	1.56	50.00	1.13	0.38	4.11	<0.01
Expectoration	2.56	1.89	26	0.5	0.17	3.94	<0.01	2.56	1.56	39.00	0.5	0.17	5.88	<0.001
Wheezes	1.44	0.22	85	1.22	0.4	3.05	<0.05	2	0.22	89.00	1.2	0.4	4.45	<0.01
Cyanosis	2.11	1.78	15	0.5	0.17	1.94	>0.05	1.89	1.55	18.00	1.33	0.43	1.81	>0.05
Edema	0	0	0	0	0	0	>0.05	0	0	0.00	0.00	0.00	0.00	>0.05

Table No. 1 Showing the effect of trial drugs on main clinical features of COPD in trial group I & II

Variable	Group -I							Group -II						
	Mean Score		% Change	SD	SE +	t	P	Mean Score		% Change	SD	SE +	t	P
	BT	AT						BT	AT					
Pulse rate	1.78	1.11	38.00	0.71	0.23	2.91	<0.05	2.33	1.11	52.0	0.97	0.32	3.81	<0.01
Breath holding time	3	1.89	37.00	0.6	0.2	5.55	<0.001	3.44	2.11	39.0	0.71	0.23	5.78	<0.001
Power of exertion	1.78	1.00	44.00	0.67	0.22	3.55	<0.01	2.89	1.22	58.0	0.87	0.29	5.76	<0.001
Sleep pattern	1.22	0.56	54.00	0.87	0.29	2.31	<0.05	1.44	0.44	69.0	0.71	0.24	4.17	<0.01
Intervention with Allopathic drugs	3.11	2.67	14.00	0.52	0.17	2.59	<0.05	3.22	2.00	38.0	0.83	0.28	4.35	<0.01

Table No. 2 Showing Effect of trial drug on main functional criteria of COPD in trial group I & II

Variable	Group -I							Group -II						
	Mean Score		% Change	SD	SE +	t	P	Mean Score		% Change	SD	SE +	t	P
	BT	AT						BT	AT					
FVC _(L)	80.67	88.11	8	20.54	6.85	1.1	>0.05	76.11	92.8	18	17.5	5.83	2.86	<0.05
FEV _{1(L)}	46.44	51.0	9	6.46	2.15	2.1	>0.05	49.89	72	31	19.3	6.43	3.44	<0.01
FEV ₁ /FVC%	63.00	64.22	2	10.43	3.48	0.4	>0.05	69.56	82.7	16	7.27	2.42	5.42	<0.001
Hb gm%	11.36	11.36	0	0.53	0.18	0	>0.05	12.1	12.27	0.93	0.98	0.33	0.333	>0.05
ESR	25	13	48	15.44	5.15	2.35	<0.05	22	12.78	58.0	16.58	5.6	1.65	>0.05

Table No. 3 Showing statistical analysis of spirometric/ lab parameters in trial group I & II

Variable	Group -I			Group -II			I Vs II 't'	p
	% Change	SD ±	t	% Change	SD ±	t		
Tightness in chest	57.00	0.87	4.59	89.00	0.60	9.45	1.60	>0.05
Breathlessness	44.00	0.52	8.47	57.00	0.50	11.7	2.33	<0.05
Cough	44.00	0.78	4.27	50.00	1.13	4.11	0.98	>0.05
Expectoration	26.00	0.50	3.94	39.00	0.50	5.88	1.40	>0.05
Wheezes	85.00	1.22	3.05	89.00	1.20	4.45	0.99	>0.05
Cyanosis	15.00	0.50	1.94	18.00	1.33	1.81	0.96	>0.05
Edema	0.00	0.00	0.00	0.00	0.00	0.00	0.00	>0.05
Pulse rate	38.00	0.71	2.91	52.00	0.97	3.81	1.37	>0.05
Breath holding time	37.00	0.60	5.55	39.00	0.71	5.78	0.71	>0.05
Power of exertion	44.00	0.67	3.55	58.00	0.87	5.76	2.45	<0.05
Sleep pattern	54.00	0.87	2.31	69.00	0.71	4.17	0.89	>0.05
Intervention with Allopathic drugs	14.00	0.52	2.59	38.00	0.83	4.35	2.40	<0.05

Table No. 4 Showing comparison of effect of therapies between two groups on clinical parameters

Variable	Group -I			Group -II			I Vs II 't'	p
	% Change	SD \pm	t	% Change	SD \pm	t		
FVC _(L)	8.00	20.5	1.10	18.0	17.5	2.86	1.03	>0.05
FEV _{1(L)}	9.00	6.46	2.12	31.0	19.3	3.44	2.59	<0.05
FEV ₁ /FVC%	2.00	10.4	0.35	16.0	7.27	5.42	2.80	<0.05
Hb gm%	0.00	0.53	0.00	0.93	0.98	0.33	0.3	>0.05
ESR	48.00	15.44	2.35	58.00	16.58	1.65	0.38	>0.05

Table No. 5 Showing comparison of effect of therapies between two groups on spirometric lab parameters.

Results	Comparative effect of therapies on Subjective parameters				Comparative effect of therapies on objective parameters			
	Trial Group-I		Trial Group-I		Trial Group-I		Trial Group-I	
	No. of Patients	percentage	No. of Patients	percentage	No. of Patients	percentage	No. of Patients	percentage
Markedly Improved	6	66.67	7	77.78	2	22.22	7	77.78
Improved	3	33.33	2	22.22	3	33.33	2	22.22
Not Improved	0	0	0	0	1	11.11	0	0
Deteriorated	0	0	0	0	3	33.33	0	0

Table No.6 Showing overall comparison of effect of therapies between two groups on Subjective parameters and objective parameters.

Results: Among the total 23 registered patients, 18 patients i.e. 9 patients in group-I and 9 patients in group-II completed the trial successfully. In both groups the effect of therapy showed statistically significant reduction in tightness in the chest, breathlessness, cough, expectoration and wheeze. However reduction in cyanosis and oedema was statistically insignificant in both the groups ($P>0.05$) (Table no.1). Except pulse rate all other functional criteria were statistically significantly improved in group-I. On the other hand including pulse rate all functional criteria were statistically significantly and highly significantly improved in group-II. Requirement of intervention with allopathic drugs was also statistically significantly reduced in group-II (Table no.2). Base line hematological parameters remained within normal limits before and after the therapy in both the groups(Table no.3). Effect of therapy showed statistically insignificant improvement on spirimetric parameters in group-I. On the other hand in group-II statistically significant and highly significant improvement was observed on spirometric parameters (Table no.3). In Trial Group-I, 6 patients (66.67%) showed marked improvement and 3 patients (33.33%) showed improvement in their subjective symptoms.

None of the patient was noted to be deteriorated. In Trial Group-I, 2 patients (22.22%) showed marked improvement, 3 patients (33.33%) showed significant improvement, whereas 1 patient (11.11%) has shown no improvement. Remaining 3 patients have shown deterioration in their subjective symptoms. In Trial Group-II, 7 patients (77.78%) have shown marked improvement and 2 patients (22.22%) improved significantly on the basis of subjective criteria. 7 patients (77.78%) had shown marked improvement in their FEV₁, 2 patients shown improvement and none of the patient showed deterioration on the basis of objective criteria(Table no.5).

Discussion : COPD is the most common causes of death in Rural India. Exposure to smoke, pollution & various types of occupational dust is responsible for COPD. Keeping in view the various risk factors, pathology, pathogenesis and symptomatology of the disease, an *Ayurvedic* formulation having Vata-Kapha shamak properties has been selected for its management. Various studies have shown that constituents of this drug have mucolytic, expectorant bronchodilatory anticholinergic and anti oxidant properties. Some of the drugs have

antimicrobial action too. In both groups the effect of therapy showed statistically significant reduction in tightness in the chest, breathlessness, cough, expectoration and wheeze. However reduction in cyanosis and oedema was statistically insignificant in both the groups ($P>0.05$). Except pulse rate all other functional criteria were statistically significantly improved in group-I. On the other hand including pulse rate all functional criteria were statistically significantly and highly significantly improved in group-II. Requirement of intervention with allopathic drugs was also statistically significantly reduced in group-II (Table no.2). Base line hematological parameters remained within normal limits before and after the therapy in both the groups (Table no.3). Effect of therapy showed statistically insignificant improvement on spirometric parameters in group-I. On the other hand in group-II statistically significant and highly significant improvement was observed on spirimetric parameters (Table no.5). Overall improvement on the basis of various subjective and objective parameters showed better response in group-II in comparison to group-I; where patients received trial drug as well as performed breathing exercises. None of the patient was noted to be deteriorated in trial Group-II on both subjective and objective parameters. Whereas in trial Group-I about 44% patients remained either unimproved or deteriorated on the basis of various objective parameters. (Table no.6).

Conclusion : Ayurvedic formulation Kulthyadi Guda along with along Yogic Breathing Exercises have proved to improve the ventilatory functions as well as subjective symptoms of the patients of COPD. The combination of Kulthyadi Guda and Yogic Breathing Exercises has shown upper edge over the formulation Kulthyadi Guda when it was given alone in COPD patients. Thus it can be concluded that the combination of Kulthyadi Guda and Yogic Breathing Exercises could be used effectively in the management of COPD. No adverse effect of the therapy was observed during the trial period.

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Abbreviations :

AT	: After Treatment
BT	: Before Treatment
COPD	: Chronic obstructive pulmonary disease
ESR	: Erythrocyte Sedimentation Rate
FEV ₁	: Forced Expiratory Volume in one second.
FVC	: Forced Vital Capacity
Hb	: Haemoglobin
mg	: Milligram
SE	: Standard Error of Mean
SD	: Standard deviation

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Yogic and Ayurvedic techniques for conservation of seminal energy

Er. Anurag Joshi

Abstract

Now-a days a lot of unrest is found in the youth. Their physical and mental frustrations are also found, as one of the reasons for committing crime like rapes and murders. After which, they confess that through uncontrolled sexual indulgence they have lost mental, vital and physical energies with the result that their mind becomes sluggish, will power is lost and the body becomes languid and sickly. They live a miserable life seeing no way to redemption. They lament that, somehow they have to drag along the remaining part of the life, aimlessly. If the youth are aware of properly utilizing their seminal energy, they can do miracles. The world can be transformed into a much peaceful place to live in. This paper throws light on the aspects of seminal energy and its significance and various techniques for conservation of seminal energy.

Key Words : Seminal energy; Conservation; Yogic Techniques; Ayurvedic Techniques.

Introduction

Seminal energy is the energy of semen. According to yogic science, semen exists in a subtle form throughout the body. It is withdrawn and elaborated into a gross form in sexual organ under the influence of an electromagnetic(Bioelectric)energy. It is also called Kamashakti. Sublimation of sexual energy does not mean flowing the semen from seminal vesicles to the brain. There is no such duct or vessel through which semen could flow upwards towards the brain. Sublimation means diversion of bioelectric energy from sexual organs to central nervous system. This energy is converted into Ojas.{1}

Formation of Semen

According to Ayurveda, from the digested food chyle is formed. Out of chyle comes blood. Out of blood comes flesh. Out of flesh comes fat. Out of fat comes bone. Out of bone comes marrow. Out of marrow comes semen. Conversion of Dhatu at every step takes a period of five days. Thus semen is the last Dhatu that is formed out of food. It takes approximately 30 days and 4 hours to complete this cycle. Scientists believe that an intake of 32 kg. of food produces 800 gm. of blood, which in turn forms only 20 gm. of semen. {2}

Modern Medical Opinion

Eminent European Medical experts also support the statements of the Yogis of India. Dr. Nicole says, "It is a medical and physiological fact that the best blood in the body goes to form the elements of reproduction in both the sexes. In a pure and orderly life, this matter is reabsorbed. It goes back into circulation ready to form the finest brain, nerve and muscular tissues. This vital fluid of man carried back and diffused through his

system makes him manly, strong, brave and heroic. If wasted, it leaves him effeminate, weak and physically debilitated and prone to sexual irritation and disordered function, a wretched nervous system, epilepsy and various other diseases and death. The suspension of the use of the generative organs is attained with a notable increase of bodily, mental and spiritual vigour." If the spermatid secretion in man is continuous, it must either be expelled or be reabsorbed. As a result of the most patient and preserving scientific investigations, it has been found that whenever the seminal secretions are conserved and thereby reabsorbed into the system, it goes towards enriching the blood and strengthening the brain. Dr. Dio Louis thinks that the conservation of this element is essential to strength of body, vigour of mind and keenness of intellect. Another writer Dr. E.P. Miller says: "All waste of spermatid secretions, whether voluntary or involuntary, is a direct waste of the life-force. It is almost universally conceded that the choicest element of the blood enters into the composition of the spermatid secretions. If these conclusions are correct, then it follows that celibacy in life is essential to man's ultimate well- being." {3}

Ojas shakti (Cause of magnetic personality)

According to Dhanvantari, the god of Ayurvedic medicine, the sexual energy is transmuted into Ojas or spiritual energy by pure thoughts. It is called sex sublimation in western psychology. Sublimation is not a matter of suppression or repression, but a positive dynamic conversion process. It is the process of controlling the sex energy, conserving it, then diverting it into higher channels and finally converting it into spiritual energy or Ojas shakti.Ojas is the cause of

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attractive personality. If you see any person who is outstanding in his work, whose speech is impressive and thrilling, has lustrous eyes and a magnetic aura on his face and awe-inspiring (charismatic) personality, be sure that he has stored up Ojas in his brain. This stored up energy can be utilised for divine contemplation and spiritual pursuits (Self-realisation). {4}

Techniques for Conservation of Seminal Energy

Yogic Techniques

When the sex-centre is stimulated, ejaculation of semen takes place. This method checks it effectively. If there is a thought of sexual desire in the mind, be alert. Concentrate your mind on genitals and contract the genitals inwards towards the belly, just as piston is pulled outwards to fill the pump with water. This is called Yoni Mudra. Then shut your eyes. Meditate, "Now I am looking upwards from lower sex-organs to the thousand petalled lotus (Sahasraar Chakra) in brain within my body." The seminal energy flows to whatever point (organ) the mind is focussed on. If you focus the mind on Sahasraar Chakra, the bioelectric energy, which would have otherwise, been wasted in ejaculation through the activated Muladhar Chakra, will be sublimated upwards to the Sahasraar Chakra and will be transmuted into Ojas. But mind well. If your mind is still covetous of sex-pleasure, you will not succeed in preserving seminal energy. But if you practise for a few days with discrimination and strong will, you will get abundantly its rewards. You will directly experience that even though sexual desires come with a force of storm, with this technique applied, they subside within a few seconds. Whenever any strong sexual desire arises, exhale all the air from lungs completely and retain the breath out. Then contract your belly and take your navel back towards the spinal cord. By repeating this two-three times, the passion is pacified and you will be saved from seminal discharge. This technique is very simple but it is a very important Yogic manoeuvre. Air in the lungs is called Apaana Vayu. With the strengthening of Apaana Vayu the sexual organ awakens and the mind becomes troubled. By forceful expiration of air, Apaana Vayu is weakened. So it cannot activate the sex-centre. Moreover, by contracting the belly and navel backwards, the remaining energy in the sex-centre goes towards the navel. So there is no more energy left to activate sex-centre and thus ejaculation is prevented. {5}

Asanas and physical exercises

A healthy mind lives in a healthy body. One should regularly practice selective yogasanas, pranayamas and exercises early in the morning. This helps considerably in one's effort to check the sexual impulse. Jogging and brisk walking in early morning for 3-4 minutes also

provides a good exercise to the body. In addition, do 13 or more Suryanamaskaras at sunrise, it gives the benefit of both asanas and exercise. Exercise does not mean bodybuilding. Heavy muscular exercise should be avoided. The purpose of exercise is just to provide enough exercise to the body to keep it free from diseases. Body and mind should be healthy. Asanas are more helpful and useful to a sadhaka than exercises because asanas are not only physical, but also spiritual. They help a long way in controlling the senses, mind and body. Asanas are very useful for integral physical growth and practice of Brahmacharya. Asanas purify the body, nerves and muscles, nadis and thereby enhance the sattvic nature. As such there are so many different asanas for development of different organs and parts of the body. Padmaschimottanasana, Sarvangasana and Mayurasana are very useful for maintaining Brahmacharya. Among these, Padmaschimottanasana is the most useful. Asanas should be learnt from a qualified instructor and should be done on an empty stomach, in the open air. Asanas should be done after evacuation of bowels and after taking a bath. {5}

Pranayama

The underlying principle of pranayama is that the relation between emotion and breathing is two way i.e. not only emotions have affect on breathing but controlled rhythmic breathing has positive effects on emotions too. The study affirmatively proves the effect of practice of Nadi Shodhan Pranayama (NSP) in enhancing Feeling Healthy, Memory Recall, Mental Stress Relief and Physical Relaxation. It was observed that 75% of the subjects gained in terms of Feeling Healthy, 80% in terms of Memory Recall, 75% in terms of Mental Stress Relief and 90% in terms of Physical Relaxation. {6}

Ayurvedic Techniques

Herbal aid

Ayurvedic Churna : Take dried Amalas (goose berries), the fruits of a tree Emblica Officinalis and grind them into powder. Ready-made Amala powder is available in the market also. Mix two parts of the Amala powder with one part of powdered rock-sugar. You may get this ready-made mixture from ashram also. Take one spoonful of the powder with water half an hour before going to bed. This powder thickens the semen. It also relieves constipation. It restores the balance of Vata (Wind), Pitta (Bile) and Kafa (Phlegm). It is also beneficial to those who get wet dreams. Even healthy people can take it as it helps in self-control. **Use of Gum:** Soak 6 Gms. of Gum of Khair tree (Acacia catechu) in water at night. In the morning take this soaked gum on empty stomach. If this causes loss of

appetite, take a few slices of ginger with lemon juice 5-10 minutes before meals. Tulsi (Basil) cures many diseases. Moreover, it helps in conservation of seminal energy. It improves power of memory. Leaf of Tulsi is an excellent herbal medicine. It restores imbalance of wind, bile and phlegm and thereby helps in cure of many ailments caused due to their imbalance. It is very useful in cases of blood disorders, cough, worm- infestation etc. It is good for cardiac disorders also." {5}

Other Techniques

Simple Living:- The majority of human beings suffer under the delusion that they will gain a special and covetous social status if they lead a life of pomp and show. But this only reveals the hollowness of their perverted ego-based value system, which takes pride in vulgar exhibition of wealth and possessions. With a view to lead a worthwhile, purposeful life one should abstain from wearing gaudy-coloured (fashionable) clothes, silks, etc. and using stimulating perfumes and scents. The more luxurious a life one leads, the more difficult it becomes for him to preserve his seminal energy. A cursory glance through history shows that truly great personages led simple, unostentatious lives. Simple living is a sign of greatness. Learn to follow the lives of great saintly souls. Don't be impressed by the life-styles of ostentatious egoistic people. {5}

Early rising:- Night pollution generally occurs in the fourth quarter of the night. Therefore get up from bed between 4 and 4.30 a.m. Those, who get up late in the morning, become spiritless. Sleep on the left side. Allow the Solar (Surya) Nadi pingalaa to work throughout the night through the right nostril. {5}

Eschew intoxicants:- Alcoholic drinks (liquor), tobacco (chewing), cigarettes stimulate passion. Heart and lungs are weakened by intoxicants. Immune system is jeopardized and longevity is reduced. Scientific research conducted by American doctors proved that the intoxicants make semen watery and infertile. {5}

Seek Satsang or Good Company:- If one doesn't seek good company, he will fall in bad company. Therefore always seek satsang or association with the wise, saints, Yogis, Sanyasis and Mahatmas, and practice their precepts in thought, speech and deed. Whenever an evil thought enters your mind, be alert. Leave that place immediately and go to a place of Satsang. The magnetic aura, the spiritual vibrations and the powerful thought currents of saintspurify the body and the mind of passionate man. If one doesn't do this, the sexual thoughts will penetrate the body. It is the mind that really does all actions, the determination of mind will be put into action. You will get a downfall. Lamentation

after the fall is futile. The water has a natural tendency to flow downwards. Even so mind has a natural tendency to go downwards to sense pleasures. The passionate mind deceives the person and drags him to sense pleasures. It takes you into bad company, which ultimately leads to downfall. Apparently the bad company may seem attractive to you but, "Don't indulge in momentary sensual gratifications, for it results ultimately in a number of sorrows and sufferings. Even if you suffered a great downfall in past life, there is a chance for redemption provided you turn to satsang. The history reveals that many wicked persons have become great persons through Satsang. Lack of Satsang leads to downfall. Therefore, take a bath in the holy Ganges of satsang. It will burn all ignorance, all thoughts and Sanskaras of passion and evil actions in short time just as a single matchstick burns huge bundles of cotton in few seconds. {5}

Cultivate good will :- Even great sages and Yogis have, at times, experienced failure on the path of Brahmacharya, how can we observe celibacy strictly? Resolutely drive away such weakening thoughts. Develop dynamic will power. As you think, so you become. This world is itself a manifestation of Cosmic Will. Therefore, think positively. Will is a powerful enemy of passion. Strong will helps in preservation of seminal energy and the latter cultivates the former. It is the faith that bestows the fruit of success. Brahmajnani saints have unshakable will power. Actually Brahmajnani is an embodiment of Brahmacharya. {5}

Change the angle of vision:- Ramakrishna Paramhansa said, "Whenever you see a beautiful woman, and if evil thoughts crop up in your mind, visualise the 'World Mother' (Jagadamba) in her. She is a manifestation of 'World Mother'. That is why she is so beautiful. She is Divine mother blessing me with her Darshana. Entertain this Bhava (attitude), evil thoughts will die. When Governor of Kalyana, Bahlol Khan was defeated by Major General of Shivaji's army, the latter presented a beautiful Begum to Shivaji. Strict celibate Shivaji looked at her with reverence, and said, "If I have to become beautiful, I will take birth through your womb, mother." Saying this he scolded his Major and ordered him to send her with full honour to her husband. Shivaji was a strict celibate because he was a disciple of a mighty saint Samarth Ramadasa. {5}

Conclusion :- Many young people, who are badly perturbed, in spite of having the physical ability to proceed on the path of spiritualism as well as peace, are distracted by the objects of sense indulgence and fall a prey to carnal pleasures. Not appreciating the prime importance of sexual energy, they recklessly fritter it

away through sensual indulgence, a folly that would later become a matter of life-long repentance for them. Throughout history, great sages, saints, and seers have stressed the paramount importance of celibacy for leading a noble and sublime life. A person lacking in self restraint and self-discipline can never make progress in any worthwhile endeavor nor can he be of any service to the society. A society made up of such people is unable to make any material or spiritual progress. Such degenerated societies disintegrate in the long run. The implementation of yogic and ayurvedic Techniques for conservation of seminal energy can effectively generate the awareness amongst youth. This can overcome the problem of infertility to a considerable extent. Also the crime rate as a consequence of misuse of Seminal Energy, can be reduced much. This can give rise to the constitution of healthy society and prosperous nation.

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Clinical Research In Ayurveda :- Need of the hour, its means & its methods

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Abstract:

During the last couple of decades, use of Ayurvedic medicines has expanded globally & is becoming more popular day by day. Ayurvedic drugs in several forms have been in use since centuries and they have an ancient history of acceptability & efficacy since it has also been a matter of utmost concern to our ancient researchers. This is clearly evident from the fact that at every step of drug preparation, there is a reference of acceptability & purification; but still modern scientific awareness has necessitated a shift from our ancient qualitative observations to the current concepts of quantitative research.

In the present day scenario, increasing scientific awareness, concern for safety, global recognition to the system, new parameters of drug testing & the need for streamlining the system have necessitated clinical trials in Ayurveda. This paper outlines in brief, the need for preclinical & clinical trials of ASU drugs, problems encountered and guidelines & protocols which should be followed to conduct these studies.

Introduction

Clinical Research (CR) involves methodological & systematic study of drugs, devices, biological vaccines used in diagnoses, prevention & treatment of disease. Thus, Clinical Research is the needle's eye through which all advances in medical field must pass before they can benefit the public.

Broad aims of CR are:-

- Improved benefit to patient
- Improved health care of society
- Make the health system more efficient

Since the times of James Lind in 1747 (considered father of Clinical Trials) the level of sophistication in drug manufacturing, assessment, regulation & patient expectation has evolved a billion times. Safety & efficacy of any drug/formulation has been the foremost guiding principle of this development.

Clinical trials & Ayurveda

During the last couple of decades, use of Ayurvedic medicines has expanded globally & is becoming more popular day by day. Though Ayurvedic drugs in several forms have been in use since centuries, still modern scientific awareness has necessitated a shift from our ancient qualitative observations to the current concepts of quantitative research. Also continued interest in herbomineral medicines have paved a way for interdisciplinary research.

Certain plant-derived medicines have been researched under strict guidelines of control & safety. Their scientific validation is good to excellent & efficacy in

patients is stronger. e.g. St. John's wort, Emblica sp. Glycirriza, Withania sp.

But the scenario is a bit different in India. Effect & impact of modern medicine, destruction of plant habitat, lack of adequate funding & opportunity, poor lab techniques & human determination are among several hindrances in validating our traditional knowledge for making it a mainstream medicine.

Need for the Study of Therapeutic & Pharmacologic Effects of Herbomineral Products

- Both the plants as well as minerals are a home to several active principles and other ingredients many of which are frequently unknown till today.
- A single drug therapy is rarely prescribed. Prescription always consist of a combination of different single drugs or polyherbal formulations
- Wide range of therapeutic dose is attributed for any formulation in our texts, making it difficult for young physicians to select a drug of choice.
- Many clinical success stories are rarely made public
- Guarding of traditional knowledge by some vaidyas.
- Due to market forces, availability & quality of raw material has become a big question.
- Standardization, stability & quality check are also sometimes compromised.

Ayurvedic drugs have an ancient history of acceptability & efficacy since ages. Safety has also been a matter of utmost concern to our ancient researchers. It is clearly evident from the fact that at every step of drug preparation, there is a reference of acceptability & purification. *Charak* has described adverse reactions to

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medicines when they are prepared or used inappropriately. *Prakriti guna, desh , ritu, grahyta, nihitam, upasanskaritma etc.* are considered while preparing a medicine. Further, it is stated “*that even a strong poison can become an excellent medicine if administered properly & even the most potent drug can act like a poison if handled carelessly*”. But in the present day scenario, increasing scientific awareness, concern for safety, global recognition to the system, defence of national traditional system & for streamlining the system have necessitated clinical trials in Ayurveda. Our literature has a wide description of dose, duration & indications of drugs, part of the plant to be used. Safety & efficacy has also been highlighted but these are qualitative observations which do not go down well with the scientific community in present day. Moreover, in certain cases the dosage also seems to be a concern. Thus, clinical trials protocol in Ayurveda should be designed keeping certain factors in view like-

- Available raw material
- Emphasis should be on excellent safety. (Sarmukaddam *et al*, IJAR)
- Reformulation of dosage should be done, especially in case of bhasma.
- Shelf life of drugs is another concern
- Lack of coordination among various institutes involved in research.
- A central research database should be created so that access to ongoing researches is made simple.

Trials should be designed with hypothesis “Ayurvedic interventions are equivalent to conventional medicine in efficacy & superior in terms of safety”.(Sarmukaddam *et. Al*. IJAR)

Preclinical and Safety aspects

Since Ayurvedic formulations have been in use over centuries together, they have not shown to be causing any harm to a patient, hence strict regulatory action regarding preclinical study is not required over them, unless there is any evidence showing some risk assessment.

Above all standardization & characterization of raw material & as well as of product should follow strict guidelines as laid by in API, so as to create batch-by-batch uniformity of drug.

Validation of dosage as given in literature & documentation of dosage dependent risk should be emphasized.

It must be mandatory to report any side effects & they should be documented according to normal pharmacovigilance practices.

Toxicological studies (acute, sub acute, chronic) should be included in drug safety assessment. This will surely provide a stronger safety character to our drugs.

ICMR guidelines for clinical evaluation of herbal products.

1. A lot is known about the use of a plant or its extract, metals, minerals and animal products in the ancient literature or it is regularly used by traditional physicians and the substance is to be clinically evaluated for same indication for which it is being used or as has been described in the texts.
2. When an extract of a plant or a compound is isolated from the plant and any compound formulation having plants, metals, minerals and animal products as ingredients has to be clinically evaluated for a therapeutic effect not originally described in the ancient texts or, the method of preparation is different, it has to be treated as a new substance or new chemical entity (NCE) and the same type of acute, sub acute and chronic toxicity data will have to be generated as required by the regulatory authority for synthetic products before it is cleared for clinical evaluation.
3. An extract or a compound isolated from a plant and any compound formulation having plants, metals, minerals and animal products as ingredients, which has **never been in use before** and has not ever been mentioned in ancient literature, should be treated as a new drug, and therefore, should undergo all regulatory requirements before being evaluated clinically.

It is important that plants and ASU remedies currently in use or mentioned in literature of recognized Traditional System of Medicine is prepared strictly in the same way as described in the literature while incorporating GMP norms for standardization.

Further in this case phase I studies may not be required. It needs to be emphasized that since the substance to be tested is already in use in Indian Systems of Medicine or has been described in their texts, the need for testing its toxicity in animals has been considerably reduced. Neither would any toxicity study be needed for phase II trial. In Phase II dose ranging should be explored to find the effective dose as also maximum tolerated dose.

Difficulty in conducting clinical trials for Ayurvedic drugs

- Compromised standardization & quality of raw products
- Variation in quality of same material across different parts of country
- Batch by batch variation in drug
- Limitation of blinding
- Limitation of using placebo
- Multi drug therapy

Clinical Trial Design, Approaches & Methodologies

The judicious selection of designing of trials should be done from among randomized trials, single case, black box, equivalence etc. it is because a single research strategy does not fit all circumstances & all the interventions done in Ayurvedic sciences.

Randomized Controlled Trial

It consist of two or three study arms, large number of patient in each arm , one specific standard treatment and dose & one or two year of follow up. However Ayurvedic treatment conceptualizes individualization of treatment based on examination & understanding of patient constitution & condition. Such analogue is not present in allopathic medicine. Thus, this type of trial is not very much feasible in our system.

Single Case Design

Here patient acts as his own control. It is appropriate for development of research hypothesis, testing that hypothesis in daily clinical practice & refining clinical techniques.

Black Box Design

Here treatment & all its contents are delivered as a package. No part of treatment package is isolated or studied independently. This allows effectiveness of Ayurvedic drugs to be determined in its own theoretical framework. Nevertheless, the problem is that the results are less convincing & it requires increased data input.

Observational Trial Design

These studies may be conducted with or (with out) control group. It is good for studying both the safety & efficacy of treatment. This study documents a treatment under routine conditions. Here subjects are not randomized into groups, not given trial treatment or a placebo. Instead, they are enrolled & observed over a period. A unique example of such a trial has been given by Vd. Balendu Prakash(2006) on Integrated approach for Treatment of Migraine.

Pragmatic Trials

It is practitioner dependent. Here patients are assigned to a particular physician rather than to a particular therapy. It is physician's judiciousness to provide treatment in usual fashion, individualizing therapy for each patient. (Hugh MacPherson, 2004, Paul *et al* 2005). In this trial blinding or controlling expectation, bias is very difficult. Large pragmatic trials that include many practionors & that compare a traditional therapy with a credible control or alternate therapy would be particularly useful in assessing traditional medicine (Paul *et al* 2005).

Non-Inferiority Trial (NIT) & equivalence Trial (ET)

NIT is designed to show that one therapy is not worse than other is, while ET is aimed at finding out whether one treatment is neither better nor worse than the other is. They have a comparison group, can be randomized & even double blinded. They may prove whether both treatments yield same result. (Jaddad AR, 1998). Such studies may answer many research questions regarding Ayd. medicines. However, attention must be given to provide same conditions when treatment in question was originally efficacious.

Important considerations in clinical trials on Ayurvedic drugs.

- Preclinical data for ethical review of selected drugs should target more on safety & toxicity, when this cannot be assumed from traditional use.
- Single dose studies should be undertaken with aim to test a range doses. Chronic toxicity study may be undertaken in more than two species of animals.
- Phase 1 studies of Ayurvedic formulations may not seem feasible. These studies are initial safety studies conducted on normal persons. But looking upon the long history of use of these medicines this phase 1 trial seems to be invalid.
- Phase2 & 3 studies should be considered ethical. Dose response, frequency of dosing, type of patient constitution. Additional efficacy data is also generated.
- Specialist of concerned field of medicine having knowledge of drug preparation, standardization be involved as co-investigator in the trial.
- Inclusion & exclusion criteria should be done properly keeping an integrated approach towards Roga as well as Rogi.
- Kriyakal should be made a variable in clinical trial. This may partly explain difference of efficacy of a drug on different subjects or at various stages of diseases.
- **Placebo effect** :- The patient response is often affected by non specific factors like attitude of staff, appearance of drug, feeling of being looked after. To distinguish the pharmacological effects from non-specific effects, a pseudo drug, identical to original drug is given. But it is very difficult to prepare a placebo for ayd. drugs as they have specific colour, smell taste etc. although placebo effect may be useful to study the effect of a single drug in a multi drug therapy.
- Anupaan must also be taken care of as it is responsible for therapeutic efficacy of a particular drug.

WHO in its document “**Operational Guidance: Information needed to support clinical trials of herbal products (2005)**” has widely described the methods for clinical trials of Herbal products.

This document also states that the manufacture of the product should ideally be as per traditionally processed formulation to endorse the claim for efficacy as seen in traditional practice.

As the extracts of herbal products and ASU formulations are mixtures of at least partially uncharacterized constituents it is claimed that such a mixture provides a therapeutic advantage, since the *unknown constituents may be additive or synergistic in action or may produce a balance to counteract adverse effects of any one constituent*. This may thus provide more efficacy than would be provided by the known constituent alone. Thus, purification of the medicines down to known or otherwise single chemical constituents is not required as it may lead to loss of the advantage provided by the mixture.

Conclusion

It is indeed rational to evaluate traditional medicine in its own framework. Integrated approach should be adopted in totality.

Only where single drug therapy is indicated, it may be evaluated in framework of conventional medicine. Physicians should be encouraged to document their practical experiences to generate a healthy data. Efficacy of whole treatment regimen should be checked.

At last, it can be concluded that universal guidelines to conduct clinical trial in Ayurveda cannot serve the purpose. It is important to understand the basic philosophy behind the treatment & include it in conducting the trials.

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Preventive Oncology in Ayurveda

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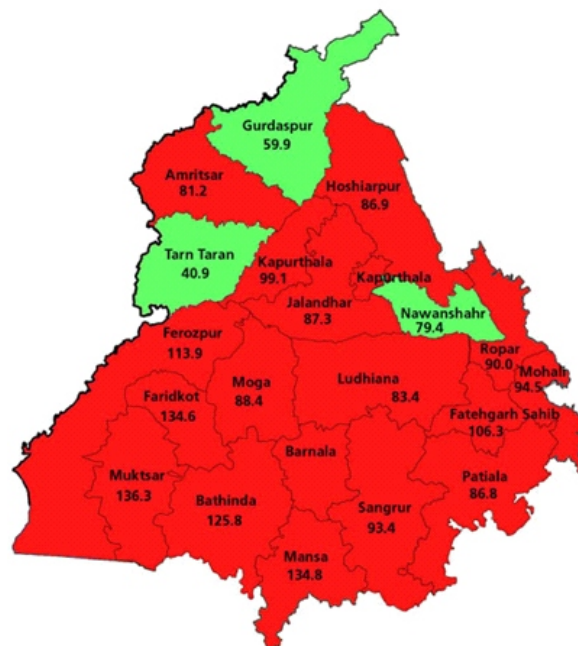
War against cancer was declared on December 23, 1971 when American president Richard Nixon signed national cancer act. The aim of such efforts is to eradicate cancer as a major cause of death¹. Despite significant progress in the treatment of certain forms of cancer (such as childhood leukemia), cancer in general remains a major cause of death 40+ years². In 2003, Andrew von Eschenbach, the director of the National Cancer Institute of America issued a challenge "to eliminate the suffering and death from cancer, and to do so by 2015"^{3,4}. John E. Niederhuber, who succeeded Andrew von Eschenbach as NCI director, noted that cancer is a global health crisis, with 12.9 million new cases diagnosed in 2009 worldwide⁵. A 2010 report from the American Cancer Society found that death rates for all cancers combined decreased 1.3% per year from 2001 to 2006 in males and 0.5% per year from 1998 to 2006 in females. Despite these reductions, the report noted, cancer still accounts for more deaths than heart disease in persons younger than 85 years^{6,7}.

Statistics provided by Boffeta and Parkin it is clear that cancer will become an increasingly important challenge to healthcare services of developing countries in the coming decades⁸. The crude incidence rate of cancer in India is 44.1 to 95.9 per 100000 population⁹. Cancer incidence in males is about half to one third that of the incidence of Europe whereas incidence rate in female is half to two third that of US and Europe. The most cancer in the world is lung cancer, accounting for 17.6% in men worldwide but 22% in the developed countries¹⁰. But analysis of Indian data shows high rates of cancer of oral cavity, pharynx among males and uterine cervix among females. Cervical cancer is the commonest cancer among females followed by breast cancer (except the data from Bombay registry where breast cancer incidence is higher than cervix). These two malignancies account for 38-52% of the total cancer loads in female.¹¹

Punjab has higher incidence of cancer than rest of the country. There are at least 90 cancer patients for every 100000 population in Punjab. Cancer incidence in the state is higher than the national average of 80 per 100000 population. Malwa region, the cancer belt of Punjab has the highest number of cancer patients 107 in 100000 Population, Muktsar district fares the worst. It is closely followed by Mansa, Bathinda and Ferozepur District. Green revolution of the 1960s and '70s introduced with

American help to promote modern farming methods using high yield varieties of seeds, chemical fertilizers and pesticides-was meant to fight hunger and productivity. But over the years, those models have become medically and environmentally unsustainable, according to many anti-pesticide campaigners, who advocate organic farming and tougher laws¹². Eight districts of Malwa's cotton belt i.e. Bhatinda, Mansa, Faridkot, Ferozepur, Muktsar, Moga, Barnala and Sangrur are worst affected by cancer. Malwa area has emerged as the epicenter of the disease and has come to be known as the cancer belt of Punjab¹³. Muktsar district has the highest average of 136 cancer patients per lakh of population¹⁴.

Cancer prevalence (per 100,000 population)



About 30% of cancer deaths are due to the five leading behavioral and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, alcohol use¹⁵. About 70% of all cancer deaths in 2008 occurred in low- and middle-income countries. Ageing is another fundamental factor for the development of cancer. The incidence of cancer rises dramatically with age, most likely due to a build up of risks for specific cancers that increases with age. The

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overall risk accumulation is combined with the tendency for cellular repair mechanisms to be less effective as a person grows older. Chronic infections from hepatitis B (HBV), hepatitis C virus (HCV) and some types of Human Papilloma Virus (HPV) are leading risk factors for cancer in low- and middle-income countries. Cervical cancer, which is caused by HPV, is a leading cause of cancer death among women in low-income countries.¹⁶

Ayurvedic medical science aims at prevention of disease first. The basic principles of Ayurveda are mainly based on observational documentation of Ayurvedic scholars through ages. Many common concepts of Ayurveda are being explored experimentally by Modern scientists. Examination of Prakriti¹⁷ done in Ayurvedic clinical method attains special importance in the age of genomics. Ayurvedic concept of natural immunity (swavab-uparamvada)¹⁸ is well accepted by modern Immunology.

From an immunological perspective, cancer cells can be viewed as altered self cells that have escaped normal growth regulating mechanism¹⁹. Various chemical agents (e.g DNA alkylating reagents) and physical agents (e.g, U.V. rays) that cause mutations have been shown to induce transformation. Induction of malignant transformation with chemical or physical carcinogens appears to involve multi steps and at least two distinct phases: initiation and promotion. Initiation involves changes in the genome, promoters stimulate cell division and lead to malignant transformation²⁰.

Chemoprevention is a relatively new concept. It involves the use of natural agents to reverse, suppress or prevent carcinogenesis before the development of invasive malignancy. The purificatory treatment regimen of Ayurveda followed by the regular use of Rasayan may prove an effective mode of chemoprevention²¹. In view of oncology the **Ayurvedic concept of “Rasayan”**²² **stands for keeping away from the carcinogen, deactivating the carcinogens and activating our immune system.** Drugs mentioned in this respect like *Tinospora cordifolia* (Guduchi) shows immuno-modulatory effect²³.

Flavonoids and isoflavonoids have shown many biological properties that may account for cancer chemoprevention²⁴. A large body of data has demonstrated the importance of plant intake in reducing cancer risk²⁵. Dietary chalcone, 2-hydroxychalcone and quercetin were administered in the diet (500mg/kg). Either during or following an 8-week treatment protocol with the carcinogen, tumor rates were reduced in all flavonoids groups²⁶. Prostate cancer, like breast cancer is observed less frequently in Asia than in Western cultures, and because of this there has been some interest in the ability of soyabeans and genistein to prevent the development of disease²⁷. The mechanism for flavonoid

and isoflavonoid inhibition of cancer includes estrogenic agonist activity in various animal models²⁸. An inhibition of human breast cancer cell proliferation and delay of mammary tumorigenesis by flavonoids was reported by So et al.(1990). Results imply that flavonoids may be more effective in controlling growth with certain mutational spectra. Oxidation of DNA is likely to be an important cause of mutation that potentially can be reduced by dietary antioxidants. Chemically, flavonoids and isoflavonoids are one-electron donors. Flavonoids have the potential to function as antioxidant. However, once a cell becomes activated by a physiological stimulus, a flavonoid-sensitive substance is generated and interaction of flavonoids with that substance dramatically alters the outcome of the activation process²⁹. Numerous additional mechanisms have been suggested for flavonoid and isoflavonoids inhibition of carcinogenesis.

Many flavonoids and isoflavonoids containing drugs are used in Ayurvedic system of medicine like licorice and barley leaves. Several studies suggest that **garlic** (*Allium sativum*) prevent cancer in woman. The prevention of cancer may be due to the antioxidant property exerted by garlic. It is known to concentrate selenium in a readily absorbable form which may partially explain its antioxidant activity and chemopreventive property. The disulfuric components of garlic may also directly bind and inactivate reactive genotoxic metabolites. **Aloe vera** is known to have potent anti-malignant activity. Its anti-malignant activity is due to its multifactorial action. It is seen that aloe inhibits only MC3-1 tumor. This action is due to its stimulation of phagocytosis. Aloe gel has also demonstrated anti angiogenic activity in inflamed synovial pouch model in mice. **Shatavari** (*Asparagus racemosus*) acts on macrophage function obtained from mice treated with the carcinogenic ochratoxin (OTA) it significantly attenuated the OTA induced suppression of chemotactic activity as well as IL-1 and TNF alpha production of macrophages. *Asparagus racemosus* showed excess production of TNF alpha. The aqueous extract of stem bark of **Azadirachta indica** has a potent immunomodulatory activity. Crocetin from **Kunkum** (*Crocus sativus*) is known to have marginal inhibitory effect on development of skin tumors induced by the application of 9,10-dimethyl-1,2-benzanthracene and croton oil. **Turmeric** has been investigated for its effects on initiation, promotion and progression of carcinogens. Curcumin and turmeric prevent activation of carcinogenesis and attack of electrophiles on DNA, act as antioxidant and antipromoter, retard the conversion of pre-neoplastic in addition to repairing damage to DNA. **Karela** (*Momordica charantia*) shows significant anticancer activity against colon cancer. The anti tumor activities of the momorchain family of proteins have been confirmed by independent testing. The protein has

shown cyto toxicity for human leukaemia cells being at least 10 times more potent in killing leukaemia cells as compared to normal human peripheral blood lymphocytes. The crude ethanolic extract of the seed of **Sahijana** (*Moringa oleifera*) is known to have antitumor activity against Epstein-Barr virus early antigen (EBV-EA). The root shows anti malignant activity against human epidermoid carcinoma of nasopharynx in tissue culture and P388 lymphotic leukaemia in mice. The active principle isolated from **kalajira** (*Nigella sativa*) is a potent anti-tumor agent and long chain fatty acid present in seed may be responsible for its activity. Witaferin A a chemical constituent of **Ashwagandha** (*Withania somnifera*) is known to possess anti-tumor activity by producing a mitotic divisionary arrest by culture human larynx and Ehrlich ascitis carcinoma cells resulting in acquisition of immunity towards a subsequent tumor implantation. Ashwagandha is also known to have chemo protective properties. A hydro alcoholic extract of *Withania somnifera* root given orally in dose of 400mg/kg in swiss albino mice significantly reduces the tumor incidence, tumor volume and enhances the survival of mice against 20-methyl cholanthrene induced fibrosarcoma tumors.³⁰

Life style modification and nutritional approach are the main aspect of Ayurveda. Obesity increases risk of cancer of the colon, breast (female postmenopausal), kidney (renal cell), endometrium, and oesophagus. Relative risk of colon cancer are increased in obesity by 1.5-2 for men and 1.2-1.5 for women. Obese postmenopausal women have a 30-50% increased risk of breast cancer. A hypothesis for the association is that adipose tissue serves as a depot for aromatase that facilitates estrogen production. Adiposity is also associated with poorer survival and increased risk of recurrence after treatment³¹. In Ayurveda Atisthul persons (obese person) are described as disease- prone³². Nutritional genomics refers to the study of any genetics or epigenetic interaction with a nutrient that leads to phenotypic changes. Genetic interactions involve direct alteration of the DNA coding sequence, whereas epigenetic changes are mechanism exclusively of direct modification or damage to DNA³³. According to Ayurvedic View tissue elements of the body are sustained being fed by their nourishing factors. Health, longevity and vital breath are dependent upon the power of digestion including metabolism³⁴. Therapeutic diet according to the concept of Prakriti is the main thought of Ayurveda³⁵. It is very much similar to the modern concept of nutrigenomics. If we adopt good life style and proper diet according to Ayurvedic basic principle, we can attain a life long prevention against malignancy avoiding carcinogen and other oxidants. As a civic is cautious in the duties of the city and a charioteer in those of the chariot, a wise person should be cautious in duties relating to his own body³⁶. All type cancer is not totally

curable in modern science but preventable. In this way Ayurvedic view in the early prevention of disease attain a new milestone in preventive oncology.

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Hyperhomocysteinemia: an emerging metabolic anomaly

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***Pankaj Bhatia*

Abstract

Homocysteine (Hcy) excess as a result of impaired metabolism due to deficiency in cofactors (vitamin B₆, B₁₂, folate) or genetic alteration in metabolic enzymes (Methionine synthase, methyltetrahydrofolate reductase, cystathionine α -synthase and cystathionine- β -lyase) leads to acquired metabolic anomaly known as hyperhomocysteinemia. Hyperhomocysteinemia (HHcy) is an independent major causal determinant of cerebrovascular and cardiovascular disorders viz. carotid artery disease, atherosclerosis, stroke and vascular dementia. Summarized is the description of the homocysteine, its fate and abnormalities that leads to hyperhomocysteinemia. Hyperhomocysteinemia causes decrease in cell survival, activation of proinflammatory mediators, apoptosis and consequently leads to cardiovascular dysfunction. On the basis of the multiple toxic effects of homocysteine excess, interventions designed for these mechanisms may provide novel targets for the development of cardio and vascular protective agents.

Introduction

Hyperhomocysteinemia (HHcy) was first identified by McCully. Low level of homocysteine (Hcy) (5-14 μ mol/L) is normally found in the plasma. Homocysteine levels can range from a low level of 14 μ mol/L to a devastating level of 100 μ mol/L in severe cases (Sehardi et al., 2002). Homocysteine is a nonproteogenic sulfur-containing amino acid (SAA) documented to be accumulated in either inherited disorders, that alters enzyme activity in metabolic transsulfuration and remethylation pathways or alternatively, in nutritional deficiencies of essential cofactors or enzyme substrates, including cobalamine (Vitamin B₁₂), folate or pyridoxine(vitamin B₆), thus results in blockade of Homocysteine metabolic pathways (Ingenbleek, 2011). Hyperhomocysteinemia impairs vascular function and is a putative risk factor for cardiovascular and cerebrovascular diseases in underprivileged malnutrition population. HHcy downregulates nitric oxide (NO) bioavailability by upregulating endogenous asymmetric dimethylarginine (ADMA) (Singh et al., 2009), which is an endogenous endothelial nitric oxide synthase (eNOS) inhibitor, thus results in vascular endothelial dysfunction. High levels of homocysteine may lead to increased production of oxidation products, homocysteine thiolactone, homocysteine and homocysteine mixed disulfides, which may damage endothelium by excessive sulfation of connective tissue (Obeid et al., 2006). Furthermore hyperhomocysteinemia may lead to cardiovascular and cerebrovascular complications like atherosclerosis, thrombosis, stroke, impaired angiogenesis, etc. Increase in homocysteine concentration is crucially involved in various autoimmune, neurodegenerative and malignant

diseases (Dalton et al., 1997).

1.1. Source of Homocysteine

Homocysteine is generated by intra hepatic transmethylation of dietary methionine (Ingenbleek, 2011). Methionine is converted to the methyl donor S-adenosylmethionine (SAM) by an enzyme methionine adenosyltransferase. SAM is demethylated to S-adenosylhomocysteine (SAH) by an enzyme SAM-methyltransferase. SAH is subsequently cleaved into adenosine and homocysteine (Lawrence et al., 2003) (Fig. 1).

1.2. Metabolism of Homocysteine

The metabolism of homocysteine involves two pathways i.e. remethylation pathway and transsulfuration pathway (Ingenbleek, 2011). Normally, about 50% of homocysteine is recycled to methionine following remethylation (RM) pathways by transfer of a methyl group from 5-methyl tetra hydrofolate catalyzed by methionine synthase, an enzyme that requires vitamin B₁₂ as a cofactor, to form methionine while the remaining is catabolized along the transsulfuration cascade involving the irreversible conversion of homocysteine to cysteine (Ingenbleek et al., 2011; Selhub 1999). Transsulfuration reaction involves cystathionine α -synthase (C α S), an enzyme dependent on vitamin B₆ (pyridoxal-5-phosphate) that condenses Hcy with serine to form cystathionine (CTT), which is further converted into cysteine through vitamin B₆ (pyridoxal-5-phosphate) dependent cystathionine- β -lyase (C β L). Cysteine, thus formed is substrate for glutathione, an important intracellular antioxidant and hydrogen sulfide (H₂S), a gas that can induce endothelial-dependent relaxation and

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is also converted into sulfates, which are excreted in urine. Cysteine can be further converted to cysteine sulfinic acid which is then converted to taurine. Taurine can decrease methionine concentration by decreasing its uptake, thus normalizing hyperhomocysteinemia. Taurine also reduces the hyperhomocysteinemia induced oxidative stress and also restores the function of extracellular superoxide dismutase thus ameliorate coronary artery wall's pathology by its favorable effect on total plasma homocysteine and apoptosis (Wesseling et al., 2009). Excess of homocysteine is also remethylated by the enzyme betaine homocysteine methyltransferase (BHMT), which transfers a methyl group to homocysteine via demethylation of trimethylglycine (betaine) to dimethylglycine (Lawrence et al., 2003). (Fig1)

1.3. Causes of hyperhomocysteinemia a metabolic anomaly

1.3.1. Deficiency of Vitamins

B-vitamins are essential cofactors in both of these Hcy metabolizing pathways. An inadequate dietary intake of nutritional factors such as B-vitamins (Quadri et al., 2004) results in deficiency in all of these coenzymes viz. vitamin B₁₂, folate and vitamin B₆ thus leading to impaired metabolism of Hcy and elevated homocysteine level. Vitamin B₆ (Pyridoxal-5-phosphate) shortage significantly triggers upstream accumulation of Hcy in biological fluids whereas folate or B₁₂ deficiency results in downstream sequestration (Ingenbleek et al., 2011).

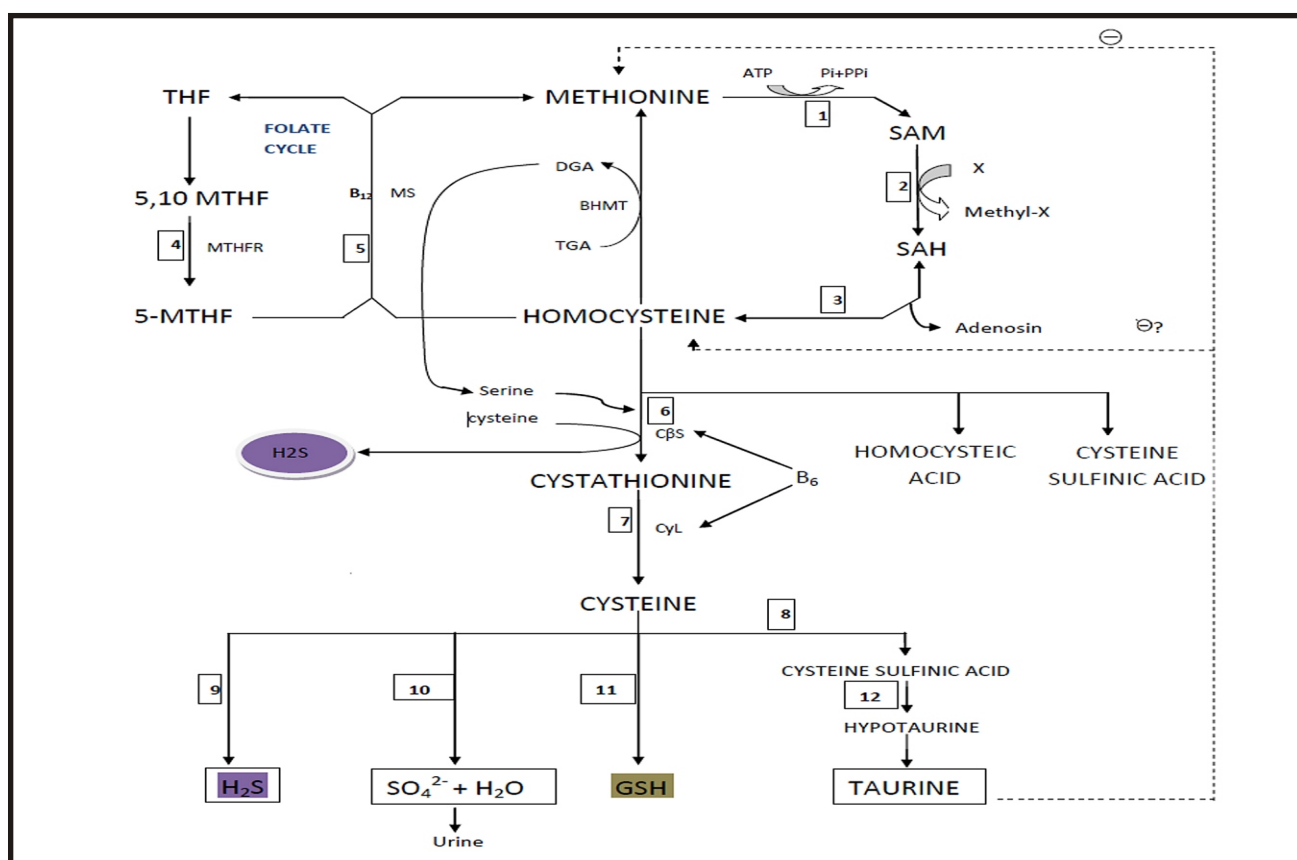


Fig. 1. Schematic representation of the methionine cycle and homocysteine degradation pathways and their toxic metabolites.

ATP indicates adenosinetriphosphate; THF indicates tetrahydrofolate; SAM indicates S-adenosylmethionine; SAH indicates S-adenosylhomocysteine; Cysta indicates cystathionine; Cys indicates cysteine; GSH indicates glutathione; H₂S indicates hydrogen sulfide; Tau indicates taurine; SO₄²⁻ indicates sulfate oxyanions; TMG indicates trimethylglycine; DMG indicates dimethylglycine.

Enzymes: (1) Met-adenosyltransferase; (2) SAM-methyltransferase; (3) adenosyl-homocysteinase; (4) methylene-THF reductase; (5) Met-synthase; (6) C&S indicates cystathionine-â-synthase; (7) C&L indicates cystathionine-â-lyase; (8) oxidase; (9) CDO indicates cysteine-dioxygenase; (10) α-glutamyl-synthase; (11) reductase; (12) sulfinioalanine decarboxylase; BHMT indicates betaine homocysteine methyltransferase

Conclusion

It has been clear that mutation in MTHFR genes, deficiency of vitamin B12, folate, betaine and B6 as a result of malnutrition, normal aging and diseased conditions are the main causes for increased homocysteine level. Despite the fact that there have been major advances in the identification of HHcy as an important independent metabolic anomaly, molecular regulators in disease progression and its role in the various pathological conditions remains to be identified. Better understanding of pathology of HHcy may provide interventions in the regulation and progression of several vascular disorders such as dementia, ischemia, cardiovascular diseases and haemostatic disorders. Thus further studies are warranted to translate this scientific knowledge into potential pharmacological interventions for HHcy and its associated cardiovascular disorders.

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Standardization of Arjakadi Vati

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Abstract:-

Physico-chemical analysis plays pivotal role in standardization of ayurvedic drugs. This article presents physico chemical study of Arjakadi Vati which was prepared in the three sample. The purpose of this study is to maintain the minimum standards of Arjakadi Vati.

Key words:- Arjakadi Vati, Standardization.

Introduction:- Arjakadi Vati is a herbal preparation. It is commonly used as a aphrodisiac drug. It consist of 20 ingredients such as Arjaka, Shankhapushpi, Nirgundi, Bhringraj, Jayphal, Lavanga, Gajapippali, Tvaka, Ela-sukshma, Tejpatra, Nagkeshara, Vansalochan, Anannatamool, Swetamusli, Satawari, Vidarikand, Gokshoora, Kapikacchu, and Baboola bark.

Aims and objects : To prepare standards for Arjakadi Vati.

Materials and method :-

Arjakadi Vati which was prepared in the three samples so named as sample S-1, S-2 and S-3, was analyzed on the following parameters.

1. Weight of Vati
2. Diameter of Vati

3. Hardness of Vati.
4. Determination of Moisture Content.
5. Total Ash
6. Acid Insoluble Ash
7. Water Soluble Ash
8. Alcohol Soluble Extractive
9. Water Soluble Extractive
10. Volatile oil
11. Disintegration Time
12. Friability Test
13. Microbial Limit Test/Test for Specific Pathogen-E. coli, S. aureus, Sollmonella spp, Pseudomonas aeruginosa
14. Test for Heavy metal / Toxic metals. Lead, Cadmium, Mercury and Arsenic

Table No.-15 Showing Physico-chemical Study of Arjakadi Vati Samples S-1,S-2 and S-3

S.No.	Parameter	Arjakadi Vati S-1	Arjakadi Vati S-2	Arjakadi Vati S-3
1	Colour	Brown	Brown	Brown
2	Odour	Pleasant	Pleasant	Pleasant
3	Taste	Astringent	Astringent	Astringent
4	Texture	Smooth	Smooth	smooth
5	Appearance	Pill	Pill	Pill
6	Weight	250 mg	250 mg	250 mg
7	Diameter	7.088 mm	7.00 mm	6.89 mm
8	Hardness	2.25 kg	2.17 kg	2.15 kg
9	Moisture Content	4.89%w/w	4.954% w/w	4.93%w/w
10	Total Ash	9.88%w/w	9.974% w/w	9.129%w/w

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S.No.	Parameter	Arjakadi Vati S-1	Arjakadi Vati S-2	Arjakadi Vati S-3
11	Acid Insoluble Ash	4.98%w/w	5.11%w/w	5.231%w/w
12	Water Soluble Ash	6.949%w/w	5.802%w/w	5.97%w/w
13	Alcohol Soluble Extractive	16.50%w/w	16.451%w/w	16.19%w/w
14	Water Soluble Extractive	15.407%w/w	15.348%w/w	16.00%w/w
15	Volatile Oil	0.85%v/w	0.80%v/w	0.90%v/w
16	Disintegration Time	35 minute	30 minute	32 minute
17	Friability Test	0.0085%w/w	0.0040%w/w	0.0121w/w
18	Microbial limit test			
	E.coli	Absent	Absent	Absent
	Salmonella	Absent	Absent	Absent
	Pseudomonas Auriginosa	Absent	Absent	Absent
19	Staphylocco-ccus Aereus	Absent	Absent	Absent
	Test for Heavy Metal			
	Pb	2.373 ppm		
	Cd	0.05956 ppm		
	Hg	0.4784 ppm		
	As	2.2502 ppm		

Table No. 16: - Showing Mean of the Arjkadi Vati S-1, S-2 and S-3 Samples.

S.No.	Parameter	Arjakadi Vati S-1	Arjakadi Vati S-2	Arjakadi Vati S-3
1	Weight	250 mg.	250 mg.	250mg.
2	Diameter	7.088 mm	7.00 mm	6.89 mm
3	Hardness	2.25 kg.	2.17 kg.	2.15 kg.
4	Moisture Content	4.89% w/w	4.95% w/w	4.93% w/w
5	Total Ash	9.88% w/w	9.974% w/w	9,129% w/w
6	Acid Insoluble Ash	4.98% w/w	5.11% w/w	5.231% w/w
7	Water Soluble Ash	6.949% w/w	5.802% w/w	5.97% w/w
8	Alcohol Soluble Extractive	16.50% w/w	16.451% w/w	16.19% w/w
9	Water Soluble Extractive	15.40% w/w	15.348% w/w	16.00% w/w
10	Volatile Oil	0.85% v/w	0.80% v/w	0.90% v/w
11	Disintegration Time	35 Minute	30 Minute	32 Minute
12	Friability Test	0.0085%w/w	0.0040%w/w	0.0121w/w

Discussion and conclusion:-

- The data (Table No. 1) shows that the weight of Arjakadi Vati Sample S-1, S-2 and S-3 are equal. The mean of above three reading of Sample is 250 mg.
 - The data (Table No. 2) shows that the Diameter of Arjakadi Vati sample S-3 is less than that of in comparison to S-1, and S-2 sample. The mean of three data is 6.99 mm.
 - The Data (Table No. 3) shows that the hardness of Arjakadi Vati S-3 is less in comparison to that of Arjakadi Vati S-1 and S-2 sample. The mean of above three reading is 2.19 kg.
 - The data (Table No. 4) shows that the moisture content of Arjakadi Vati Sample S-2 is more in comparison to that of Arjakadi Vati Sample S-1 and S-3. The mean obtained from the three sample is 4.923%w/w.
 - The data (Table No. 5) shows that the Total Ash of Arjakadi Vati Sample S-3 is less in comparison to Arjakadi Vati Sample S-1 and S-2. The mean obtained from the three sample is 9.661% w/w.
 - The data (Table No. 6) shows that Acid insoluble Ash of Arjakadi Vati Sample S-1 is less in comparison to Arjakadi vati Sample S-2 and S-3. The mean for the three sample is 5.10% w/w.
 - The Data (Table No.7) shows that Water Soluble Ash of Arjakadi Vati Sample S-1 is more in comparison to Arjakadi Vati S-2 and S-3 sample. The mean obtained from the three sample is 16.380% w/w.
 - The data (Table No. 8) shows that Alcohol Soluble Extract of Arjakadi Vati sample S-3 is less in comparison to Arjakadi Vati S-1 and S-2 sample. The mean obtained from the three sample is 16.380%w/w.
 - The data (Table No.9) show that Water Soluble Extractive of Arjakadi Vati sample S-3 is more in comparison to Arjakadi Vati S-1 and S-2 sample. The mean obtained from the three sample is 15.582%w/w.
 - The data (Table No. 10) shows that the volatile oil of Arjakadi Vati sample S-3 is more in comparison to Arjakadi Vati S-1 and S-2 sample. The mean obtained from the three sample of Arjakadi Vati is 0.85% V/W.
 - The data (Table No.11) shows that the Disintegration Time of Arjakadi Vati sample S-1 is more in comparison to Arjakadi Vati S-2 and S-3 sample. The mean obtained from the three samples is 32.33 minutes
 - The data (Table No.12) shows that the Friability Test of Arjakadi Vati sample S-3 is more in comparison to Arjakadi Vati S-1 and S-2 sample the mean obtained of three sample is 0.0080 w/w.
 - The data (Table No.13) shows that the Microbes in Arjakadi Vati sample S-1, S-2 are S-3 are absent such as E.coli, Solmonella pseudomonas and Aruginosa are absent.
 - The data (Table No. 14) shows the presence of the heavy metals in Arjakadi Vati in ppm, such as Pb 2.373 ppm, cd 0.05956 ppm, Hg 0.4784 ppm and As 2.2502 ppm. All the results were summarized and shown in Table No. 15 and 16.
- From this study it may be concluded that for the standardization point of view for Arjakadi Vati one should follow the standard mentioned in Table No.14. (For testing the procedures were adopting from Ayurvedic pharmacopoeia of India part I, vol-IIIrd and introduction to pharmaceutics-1.)

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Ayurvedic Pumsawan Boon Or Curse: A Critical Review On Genetic Parameters

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What is Pumsawan and whether consideration of Pumsawan is not a sin. These are very debatable questions before us to be considered first. Pumsawan as described in Ayurveda, is a management to reproduce a male offspring (Pumsawanmiti Pumsatwakarakam Karma- Chakrapani). Under Samhitas Pumsawan was first described in Charaka Samhita. Acharya Sushruta has only followed the text of Charaka. The question whether working for Pumsawan is a sin or not? If we are doing something against the female population by blocking the system reproducing the female offspring, it will certainly be a sin. Again if it involves the act of female feticide, it will be a sin. In Pumsawan the process practiced is centered with activation of the system reproducing the male offspring or favoring the conditions suitable to reproduce a male offspring. The question whether all the parts of Pumsawan have the same moral values, is different and it can't be replied so easily, it will be replied later on. As referred under the title of this article, now the question arises that what is Ayurvedic Pumsawan and whether there is any modern Pumsawan? At this point it has to be made clear that the area of Ayurvedic Pumsawan is limited to the procedures described in Ayurveda, i.e. Pumsawan Yajna and Pumsawan Karma. Modern Pumsawan can be said for such practices which are followed for reproducing a male offspring through the application of any medicine or procedure or therapy as a part of pre-conceptional sex selection technique.

Root of Pumsawan: The root of origin of Pumsawan can be attributed to Parloka Eshana. Under Tristraishaniya Adhyaya in Charaka Samhita, the description of three types of supreme desires are described i.e. Prana Eshana, Dhana Eshana and Paraloka Eshana.

इह खलु पुरुषेणानुपहतसत्त्वबुद्धिपौरुषपराक्रमेण हितमिह
चामुष्मिश्च लोके समनुपश्यता तिस्र एषणा पर्येष्टव्या भवन्ति ।
तद्यथा— प्राणैषणा, धनैषणा, परलोकैषणेति ।।
(च.सू. 11/3)

The persons embodied with Mana, Buddhi, Pourush and Parakram desiring their welfare in this world and in other world, should try to fulfill their three supreme desires, i.e. Pranaeshana, Dhanaeshana and Paralokaeshana.

Paralokaeshana refers to Putraeshana, as the applied

aspect of Paralokaeshana is absolutely Putraeshana. Paraloka philosophically refers to heaven and biologically it is the world of the children of a person, and when it is considered to the level of male counterpart it is virtually the world of his son. This is how in natural way Parlokaeshana had given environment for the development of Pumsawana during Samhita period.

Why Putra is important: Pumsawan is a system of Indian medicine made to benefit the people desiring for a son. Desiring for a son has been considered a holy desire since Vedas, since son was considered as an essentiality for getting salvation from the Punnaraka (an especial type of disastrous lively hood).

पुन्नाम्नो नरकात् त्रायते इति पुत्रः ।

In Vedas the son has been given supreme importance. After reviewing such information who will not extremely desire a son.

पुमानग्निः पुमानिन्द्रः पुमान् देवोवृहस्पतिः ।
पुमान्संपुत्रविदारव तम् पुमान्नु जायतम् ।।

As above the son was considered as Agni, Indra and God Vrahaspati and the ladies of that era were ritually blessed by the seniors and sages. Importance of the son since Vedas has caused the origin of Putreshana and Pumsawana.

During Vedic and Epic periods pumsawana could not get any technical shape. It was widely practiced by the holy persons and royal physicians. King Ritambar, King Dilip, King Dasharatha are the memorial cases of this subject in which Pumsawana was applied through Goseva (serving to the cow) and the Putresthi Yajna applied. At some places the Brahmacharya was applied as an instrument for the Pumsawana. A saint named Kashyap counselled to his wife Aditi about the importance of Bramhacharya for Pumsawana and assured that if she had not breached the Bramhacharya of her husband she would have certainly been rewarded with a son embodied with extraordinary capacities. As such fatherly Pumsawana, as based on male counterpart was a common Pumsawana practice during Vedic and Epic periods.

Pumsawana as practiced in present era is taken from Ayurvedic Samhitas. Acharya Charaka is the first person who described the Pumsawana of a longer regimen along with pregnancy centered therapy. Acharya

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Sushruta followed Charaka and others after Sushruta followed the same.

Acharya Charka and Sushruta have recommended 3 phase Pumsawana which starts with the preparation of man and woman for the purpose of copulation, and after conduct of prescribed copulation process, when the pregnancy is assured, he recommends the treatment of the pregnant women. As such they recommended preconceptional Pumsawana, conceptional Pumsawana and postconceptional Pumsawana.

First phase can be divided in two parts, psychological building and physical building. Under psychological building Acharya Charaka has prescribed the Putreshti Yajna to be done on 8th day of the menstrual cycle and has given more emphasis on it. He has also recommended the chanting of a Mantra before following copulation as a part of psychological building:-

ब्रम्हावृहस्पतिर्विष्णुः सोमःसूर्यस्तथाअश्विनौ ।
भगोऽथ मित्रावरुणौ वीरं ददतु मे सुतम् ।।

As a part of physical building, it has been advised that the good nutritious food added with milk butter (Ghee), sesame and Urad (Masa) as well as good living with joyful aids (clothing and entertainments), be given to the men and the women along with the regimen of Brahmacharya (sexual gapping) which should be followed by them. As said above, Acharya Charaka as a part of preconceptional regime has recommended Putreshti Yajna, which as a medicine is not simply a placebo. On basis of Charaka's "Ashwasanam Hi Jivananam" it has very strong psychological potential. Under conceptional regimen they have recommended for intercourse on even days especially on 8th, 10th, 12th, 14th and 16th days in this regard.

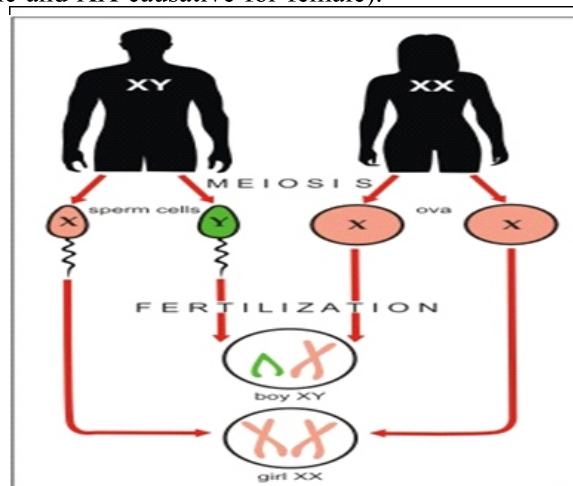
Under post-conceptional part of Pumsawan, it is directed by Acharyas that after a confirm pregnancy the pregnant woman should follow some specialized treatment based on the application of some herbs (i.e., Vatshunga, Sahadewa, Laxmana etc.) with various routes of administration (nasal) and on a particular day, duly fixed by the physician. The time period suitable for the treatment of pregnant women, was considered as, 2nd month of pregnancy, since it was that time belief that the sex of the fetus is not determined till then. Under this therapy, this is further advocated that since the sex of the fetus is not developed so treating the pregnant woman may confirm the formation of male sex organs in the fetus.

In the Ayurvedic texts like Charaka and Sushruta Samhita, much emphasis has been given to the post-conceptional Pumsawana treatment of pregnant women. Considering an elaborated biological basis and mode of action of the treatment, It is thought that particularly undifferentiated state of the fetal organs

(Avyaktavastha) remains during 2nd month, so the therapy has an action site to produce the desired result. As such it may act thereupon to ensure the birth of a male baby, therefore this has led to the derivation of a Pumsawana therapy with commercial footings.

Vaidyas and traditional therapists highly propagandized the value of post conceptional Pumsawana and started practicing by only treating the pregnant women. This practice is prevailing since Vedic period. This has flourished in present era in a mushrooming way. Drug manufacturing companies also enjoyed this opportunity for money minting and floated the market with Pumsawana pills and Pumsawana capsules to give an easy way to the lady doctors to cater to the needs of mad couples desiring a son. Though presently because of legal issues this is not prevailing but this chapter can't be forgotten, good or bad this is a part of history. Gradually this has got a place in the obstetric clinics, fertility clinics and other traditional and modern clinical centers. Since it has been proved as "golden egg laying hen", who will not like to hatch it. As such this has deserted the practice of pre-conceptual and conceptual regimens of Pumsawana by converting the three phased long Pumsawana into simple pregnancy based Pumsawana just for greed.

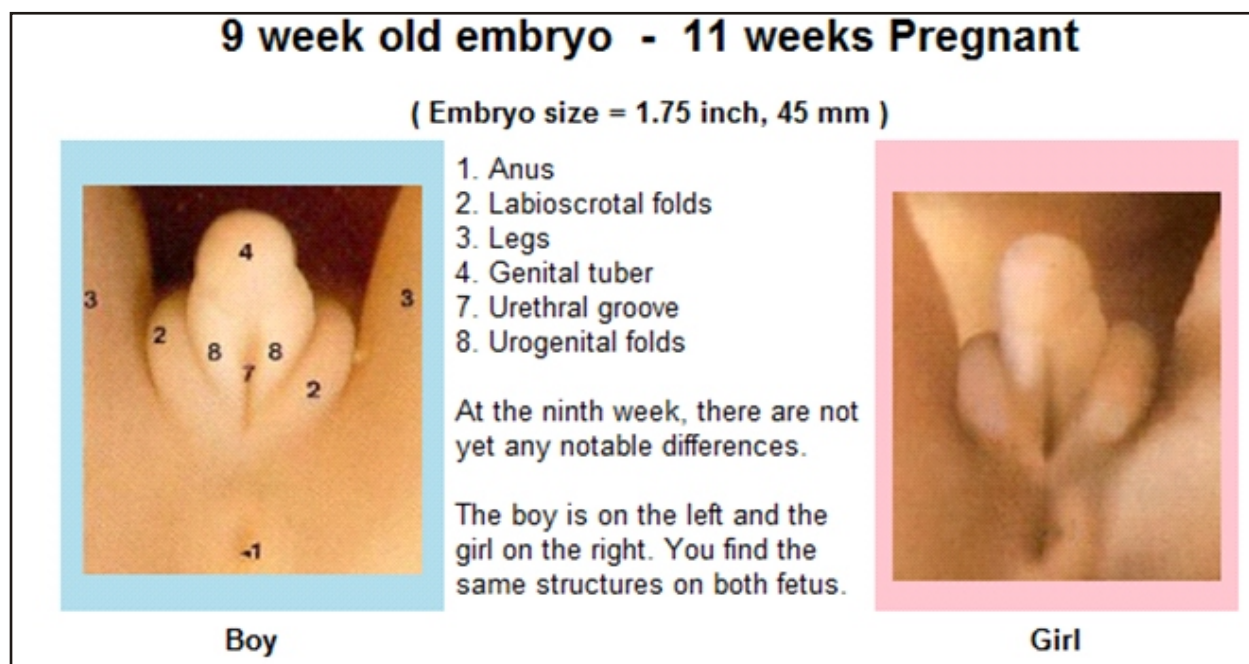
Analysis of Garbhadharita Pumsawana: The Genetics has got to a very advanced and highly developed position, this shows that the basic sex of the person is corresponding to his genetic or chromosomal status, as the sex of the person may be categorized in two i.e. genetic sex and physical sex. The genetic sex of the person is established by the presence of sex chromosomes in his cells and the physical sex by the way of the development of the sex organs. The development of the sex organs are controlled by the sex chromosomes. It is a quotable fact that the presence of the Y chromosome in the zygote results in male sex and absence of the same into female sex (XY is causative for male and XX causative for female).



In the process of embryonic development firstly the gonads are developed, With XX chromosomes, the ovaries and with XY chromosomes, testes are developed. Ovaries and testes regulate the further development of the other genital organs and features corresponding to their sex. Sometimes due to some phenotype causes, there is an incomplete or defective development in the reproductive system which particularly corresponds to the sex features opposite to his genetic sex. As such genetic sex has non-changing, fix status and the physical sex has a changing status. When it is read in news paper that someone has got change of his/her sex, he is now Rajani from Rajan, this only means that Rajani has gained her original sex status surgically, which was hidden physically as a part of congenital physical anomaly. Surgeons for their own publicity do not release right information to media. Genetic sex is a basic sex and it can't be changed. It is a big challenge before the science of biotechnology. According to genetics the genetic sex of the fetus is determined at the level of fertilization and it is never a changing sex, therefore the pregnancy centered Pumsawana seems to be only an imagination, having no substance at all.

Mystery of genital organogenesis: Normally people think that sex of an individual is what is seen externally in the body, but this is not truth. In fact the appearance of genital organs externally in the body is likely an apparition if it is not supported by the internal genital

organs. The real sex is lying inside the body, as described in previous paragraphs. The development of genital organs in male is regulated by testosterone hormone which is formed by the testes. If the level of testosterone is low, the size & shape of genital organs will be poor and may be indistinct, excess may result in reverse of it. Testosterone functions even in the descent of testes in scrotum. Testes are formed in the loin region along with kidneys, later on by the function of testosterone they are transferred in the groin and form scrotum. When it fails it also results into the failure of the fusion of urethral folds under the genital swellings, resulting in an opening like in female. In this case genital swellings look like labia majora, and in totality baby looks like a female baby having features resembling like vagina. Because testosterone is also synthesized from ovary and adrenal gland in small amounts, also there is one more hormone synthesized from these glands in female i.e. androsterone. These hormones in excess cause false appearance of male genital organs in female baby resembling like male organs, e.g. long clitoris & fusion of the skin between two true labia majora. Any treatment given to the pregnant woman may cause in hormonal disturbance in fetus and develop serious anomalies or may result into no change. Here is the point one should introspect, what he is doing as a physician under the practice of Pumsawana



Modern Pumsawan: About modern Pumsawan there is big debate, people think that Pumsawana is an Ayurvedic therapy and it has nothing to do with modern science. As such this is very essential to make clarity on this point and discover that what is the secret of modern Pumsawana. In fact any of the technique or the treatment which is applied to form a male offspring, will be called Pumsawan as already discussed. In modern medicine this practice is prevailing in the form of pre-conceptional sex selection techniques. Here some very important techniques popularly practised by the doctors throughout the world.

1. Pre-implantation Genetic Diagnosis (PGD)
2. Intra-uterine Artificial Insemination (IAI)
3. Sperm Sorting techniques (IST)
4. In Vitro Fertilization (IVF)
5. Gamete Intra-Fallopian Transfer (GIFT)

Injustice with mother through Garbhadharita Pumsawana:

If we consider the impact of Pumsawana on women livelihood, we have to look at the public belief on the determinative role of the men side & women side in the determination of the sex of the fetus and about the response of the treatment on them respectively. In this regard this is observed that there are two factors behind the subject, one is the people and other is the science. People factor has very orthodox basis. It is forced to believe that since the ultimate treatment is given to the pregnant women, at a particular time when her fetus is in the process of developing the sex organs, therefore women are considered as responsible subject for the determination of sex of the fetus. More over because she is given the treatment and she is here Chikitsa Adhishtan, therefore she will be determinative factor in the sex of baby. It is a common belief of the people and way of concluding the issue. Science factors believe that the sex of the fetus is determined at the time of fertilization and it is totally caused by the sex chromosomal status of the spermatozoa, fertilizing the ovum. As such it is the man who is responsible for the sex of the fetus and it is man who stands to be eligible for the treatment under Pumsawana.

If we probe into the facts of natural desire in hereditary variation under phylogenetic history, we find that male appeared as an instrument to put the newer sets of organism forward. It was a most valuable subject that nature developed, preserved and innovated. As such since man happened the need of the woman for the progenesis as well as for the protection in the society, therefore women happened more desirous for son. This resulted to the boosting of the people factor and furnishing of it with the arms of superstition and ugly myths, to exploit the women in general as being a vulnerable community and in particular as being a

subject for Pumsawana. The drawback of our society here is the superstition which is more valued than humanity. Ugly myths and beliefs which were made by people thousands of years back, are still being carried out in today's world of science and are still valued more than anything.

Because women have been a subject of the treatment, so at every failure she was condemned and abused. The same circumstances and the same story is prevailing in present era. As such women are being abused in the society for any failure in giving a male child to her family, even though she is at no place in the picture for determining whether the coming baby in the family is a son or a daughter. This all has been caused due to the treatment being given to the mother instead of father. In totality this is unfairness with the women in the name of Pumsawana.

Discussion:-This is now need of time to evaluate what is right and what is wrong, what is natural and non-violent and what is unnatural and violent. At this level we may say that at any cost our practices should be natural and nonviolent. In the field of medical science, there are many terms prevailing in the system, e.g. Holistic medicine, Religious medicine, Natural medicine etc. Every such name is synonymous to non-vulnerable medicine under the management of health problems. The same theme corresponds with the practice of medicine. With the appreciation of presented thought at this level we find that there is breach of holy state at many places in the medicine. Breach of holy state is referred as state of injury to the person or to the community, may be either physical or mental or social. In the light of the above state of affairs, in the area of Pumsawana we find that there is a confirmed breach of sacred state at the level of women livelihood. The treatment given to the pregnant women for getting the birth of a male baby is injurious to the women on socio-psychological levels. This is direct insult to the mother by labeling her responsible for the determination of the sex of the baby. After any failure of treatment, women are abused and condemned. This is natural that most of the people play a profit and loss game in their personal life which results into an insulting state in women living, because for every failure the weaker is blamed and abused without the consideration of any justification. As such the women have been subjected to psychosocial harassment since very beginning on this account. As such the therapeutic efficacy of the pregnancy centered (motherly) Pumsawana has been put under the mark of question in present era.

With the advent of genetics and it's current advancements this has been proved that there is no substance in considering the possibility of change in the sex chromosome of the embryo and fetus. Genetics

elucidates that when the ovum is fertilized with Y sperm, it gives rise to the birth of a male child (son) otherwise it is a female child (daughter), because the genetic sex of the fetus can't be changed. When genetic sex can't be changed then why woman is put on such a nonsense & abusive tests & treatments. This is very much un-human to continue. This may please be checked at any level. Now question is where is true Pumsawan existing? The true Pumsawan is lying in the values of Bramhacharya, in Pumsawan Yajna up to some extent, as psychological building of the couple particularly of the male. It is lying in Rasayana and Vagikarana Chikitsa. It is lying in Gosewa, It is lying in Vitamin A, D & E. It is lying in Calcium, Magnesium Zinc, Selenium etc. It is lying in modern Pumsawan techniques. But please do not allow the Pregnancy based Pumsawan. Please do not make mothers subject to any treatment for Pumsawan.

Conclusion : If we are destined to encourage the sacredness in the life of common people and particularly in the field of medicine, we have to discourage such medical practices which are found injurious to the humanity and to the people. As such it is inferred that sacredness in the life and medicine is the need of the time and it needs to be given due attention by the scientists as well as by the medical practitioners. The practice of Pumsawana on the women, based on pregnancy has no scientific basis and since it hurts the women, therefore it should be discouraged by the people of Ayurveda and be banned officially. Since it affects the women life and degrades the respectful status of the women in the family, therefore the institutional support be given to enforce the sacredness in the practice of Pumsawana. As the two aspects of the Pumsawana practice are very obvious (i.e. holistic and non-holistic), the men based Pumsawana is almost a holistic practice. It should be propagated and be given due support. Pumsawana is a part of family welfare therefore the institutional energy be also ventured to give progress in fatherly (men based) Pumsawana. Above this we should be watchful to see that it is not bringing another hazard to our society. It should be carried out with an eye on all aspects and possible harms to our society as regards with disturbed sex ratio. So keeping these things in mind, particularly fatherly (male) Pumsawana should only be allowed to be carried out in parents along with due consideration of ethical values. Women welfare departments and voluntary institutions should come forward to curb the Pumsawana practice by banning the motherly (women based) Pumsawana at every level (medical, traditional, rural, folk, ritual etc). And lastly it is appealed to “stop the motherly Pumsawana and save the mother.”

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Alzheimer's Disease : Can Ayurveda be a solution?

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Introduction

The world's population is growing older, leading us into uncharted demographic waters. There will be higher absolute number of elderly people, a larger share of elderly, longer life expectancies and relatively fewer number of working age people. As per 2011 census in India, the number of elderly people in the country is expected to be 9 crore. In 20 years the number of elderly is going to double which would make India the country with the largest number of elderly in world. In that context, the diseases of elderly are going to be a very important public health problem in India. Neurological disorders need great attention as the age advances. Many neurological disorders e.g. gait disorders, neurodegenerative disorders like dementia & neuromuscular disorders like paralysis affect the geriatric population which needs to be managed at earliest.

Dementia is a chronic syndrome characterised by a progressive deterioration in the intellect including memory, learning, orientation, language, comprehension & judgement loss due to brain disease. Dementia mainly affects older people, about 2% of cases start before the age of 65 years. After this, the prevalence doubles every 5 years. Intellectual capability is a series of complex functions that consist of many components such as memory, problem solving, calculation, speech, ability to find the way & analyze problems among other things. Dementia leads to deterioration in all the components of intellectual functions. The common causes accounting for 90% of all cases of dementia are Alzheimer's disease, Vascular dementia, Dementia with Lewy bodies & Fronto temporal dementia. Other cause related diseases are located outside the brain, amongst the most common are strokes, thyroid diseases & Type 2 diabetes.

Alzheimer's disease(AD) is the most common form of dementia. The prevalence of disease in India is said to be one in 20 people over 60 years & one in 5 for people over 80. There are about 3.7 crore people affected by the disease & the cost of treating the disease is approx. Rs 14700 crore annually. This is going to treble in next 20 years as the number of affected is going to double. Although the greatest known risk factor for AD is increasing age and the majority of people with Alzheimer's are 65 and older but upto 5% of the people with the disease have early onset AD which often appears when someone is in their 40's & 50's. The

neuropathological process consists of neuronal loss and atrophy, principally in the temporoparietal and frontal cortex, with an inflammatory response to the deposition of amyloid plaques and an abnormal cluster of protein fragments and tangled bundles of fibres (neurofibrillary tangles). The most common early symptom of Alzheimer's is difficulty remembering newly learned information. This occurs because Alzheimer's changes typically begin in the part of brain that affects learning. As Alzheimer's advances it leads to increasingly severe symptoms that include disorientation, mood & behaviour changes & deepening confusion about events, time & place. The loss of intellectual capability progresses to such an extent that Alzheimer's patients cannot remember where they keep their valuables & have to search for hours to locate them or cannot recall the names of their own children or grandchildren. They tend to lose interest or neglect their world, they don't keep appointments, have difficulty in finding words or repeat the same questions that have answered correctly over & over.

Patients of Alzheimer's generally have three kinds of symptoms which can be grouped as A, B, C of AD. 'A' stands for impairment in activities of daily life. Patients lose the ability to perform activities such as brushing, bathing, toilet habits & dressing. This usually occurs in advanced stages of disease. 'B' stands for abnormal behaviour in the patients. 'C' stands for loss of cognitive functions. Intellectual capability of patient is lost. Patients lose the ability to perform activities that they were good at such as arithmetic calculations, learning, giving their opinion and making difficult decisions.

Ayurvedic View about Jara

Ayurveda has given a sound conceptual frame work related to aging process. Aging in Ayurveda is known as Jara or vridhavastha, implying which has become old by the act of wearing out i.e. "jiryati iti jara". Term *Vardhakya* is also used signifying increasing age. Jara is considered as swabhavaj vyadhi in ayurveda i.e. which happens physiologically as age advances. Further jara is classified as kalaj jara i.e. physiological aging and akalaj jara i.e. premature aging. Acharya Sharangdhara has mentioned that with every decade of life there is loss of one of the component of human body. Among these Loss

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of Medha i.e. intellectual capabilities of a person start deteriorating in 4th decade of life and further kshaya in dhatus of the body also starts from Parihani kala i.e. at the age of 40 years. Thus we can say that although the process of ageing starts in 4th decade but symptoms of ageing are clearly visible after 60 yrs. Thus the period of 40 to 60 yrs of life can be considered as latent period of aging and any intervention to check the accelerated process of aging must be intervened during this period. If the symptoms of aging appear before 60 yrs, it is termed as premature aging.

The foundation of the science of Ayurveda is based on the concept of Tridosha i.e. Vata, Pitta & Kapha. Each entity performs specialised physiological functions in the body with their respective dominance at particular phase of life. Kapha is dominant upto 30 years of life & Pitta upto 60 years of life. During old age i.e. after 60 years there is natural predominance of vata dosha in the body. Moreover during this phase there is accelerated state of dhatu kshaya which is again responsible for provocation of vata. Thus we can say that persons of geriatric age group are prone for vatic disorders such as memory loss, disorientation, paranoia, tremors, rigidity, rough & cracked voice and stooped spine etc.

Understanding Alzheimer's in terms of Ayurveda

Brain is the organ situated in Shira Pradesh which is considered as Uttamanga (Prime organ) among the Trimarmas. It is the main control centre of all the sensory (Gyanendriyas) and motor activities (Karmendriyas) which we perform. Various attributes which make the physiological and anatomical aspect of brain include Prana Vayu, Udana Vayu, Alochaka Pitta, Sadhaka Pitta, Tarpaka Kapha, Majja dhatu (nervous tissue), Medo dhatu (fatty tissue), Rakta dhatu (blood) & Vasa (fatty tissue). All these are responsible for the effective functioning of brain. If we try to understand the pathogenesis of Alzheimer's disease according to ayurvedic principles, we can say that there is kshaya of kaphaj bhava of brain leading to increased vata dosha or in other words i.e. increased vata dosha leading to kshaya of kaphaj bhava of brain. This causes imbalance in the tridoshas. There is also a state of majja dhatu kshaya. All these factors result in loss of nervous tissue causing atrophy of brain and it is proven fact that in alzheimers there is loss of brain tissue.

Line of Treatment

As of today, no field of medicine has a complete cure to offer for Alzheimer's patients. Available treatments offer relatively small symptomatic benefits but remain palliative in nature. Various researches are being carried out for effective management of this distressing disease affecting the life of both sufferer and the caretakers. Ayurveda possesses the ability to prevent as well as treat

Alzheimer's, though the treatment does not promise a complete cure but the world is looking with a hope towards ayurveda. Ayurvedic medicinal plants have been the single most productive source of leads for the development of drugs, and over a hundred new products are already in clinical development. Researches are in progress across the globe on various Ayurvedic drugs like Brahmi, Ashwagandha, Haridra etc. and have shown promising results.

Aging is an inevitable change for all living organisms. It's not the aging, but the consequences of aging which cause problems. By following the principles of ayurveda it is possible to slow down the process of aging, restore physical and mental strength and prevent the consequences of aging up to certain extent. Ayurveda is a holistic science having prime focus on preventive aspect by maintainance of health. For the same detailed daily and seasonal regimens, code of conduct, detailed concept of dietetics, panchkarma therapeutics etc have been described for keeping the doshas in balanced state. Keeping in mind the pathogenesis according to ayurvedic principles vata dosha is mainly aggravated in alzheimers patient. Hence all treatment modalities which relieve the aggravated vata dosha must be done.

Abhyanga- Regular application of oil on the body helps in pacifying the vitiated vata dosha. This must be incorporated in the daily routine. Hot water shower must be taken after abhyanga. Oil can also be applied directly on the head in the form of Shiroabhyanga, Shirobasti, Shirodhara. These procedures have soothing action on nervous system by improving cerebral circulation and keeping the level of neurotransmitters in balance. However, these areas again require committed research work.

Diet- Nutrition is very important for brain's health. Diet should be balanced having the essential nutrients & vitamins. Excessive intake of food items having amla (sour), lavana (salt), katu (pungent) rasa must be avoided. Incompatible diet, unsuitable diet, excessive intake of junk food items, untimely eating, irregular food habits must be avoided. Diet rich in Omega-3- fatty acids like walnuts, almonds, some varieties of fish must be included in the diet. Green leafy vegetables, fruits must be taken everyday as they are rich in antioxidants which protects the brain from oxidative stress. Trans-fats and saturated fats should be avoided.

Exercise- Regular exercise helps in prevention of brain aging. Daily aerobic exercise for 20-30 minutes helps in improving brain circulation. Mind exercises like solving puzzles, reading books, memorising, being socially active helps in keeping brain healthy. Pranayam and yogasanas should be practiced.

Drugs- Ayurveda has been classified into eight important specialities. One among these is jara chikitsa involving treatment of old people i.e. Geriatrics. In ayurvedic texts there are direct references to age-associated memory loss, preventive care, and therapeutic interventions. These texts also describe several herbs with their qualities which are useful for nervous system disorders, including memory loss typically seen in older adults. Answer to all the questions regarding the treatment of alzheimer's may lie in use of vayasthapana drugs i.e. Rasayanas. Recently there have been mechanistic studies on the role of these herbs in nervous system disorders and dementias, including dementia associated with AD. Indeed, several scientific studies have described the use of various Ayurvedic medicinal plants termed "Medhya Rasayanas" (nervine tonics) and their constituents to strengthen the functional activity of the nervous system and restoration of memory. Presently out of thousands of such medicines which are under trial for alzheimer's, a few references which have shown promising results in reversing the AD pathology are being provided here.

Ashwagandha(*Withania somnifera*)

Ashwagandha is used extensively in ayurveda as a nervine tonic, aphrodisiac, and adaptogen which helps the body adapt to stress. It is categorized as a rasayana (rejuvenative) and is believed to possess anti-inflammatory activity, antioxidant activity, free radical scavenging activity, and an ability to support a healthy immune system. Ashwagandha contain flavanoids and many active ingredients of withanolide class which account for its therapeutic effects. These components (withanamides) have been shown to scavenge free radicals generated during the initiation and progression of AD. Neuronal cell death triggered by amyloid plaques was also blocked by withanamides. Unlike other adaptogens, which tend to be stimulating, Ashwagandha has a calming effect and thus may be particularly indicated in people with AD. Ashwagandha has been reported to increase memory and learning. Aqueous extracts of this herb have been found to increase cholinergic activity, including increases in the acetylcholine content and cholineacetyl transferase activity in rats and this might partly explain the cognition-enhancing and memory-improving effects. Ashwagandha has also shown nerve regeneration properties.

Turmeric (*Curcuma longa*)

It is common herb used in Indian kitchen everyday almost in every recipe. Turmeric is anti-inflammatory, antiseptic, antibacterial and has long been used in the Indian system of medicine to treat a variety of conditions. This versatile spice helps detoxify the liver, balance cholesterol levels, fight allergies, stimulate

digestion, and boost immunity. The active constituents are thought to be turmerone oil and water-soluble curcuminoids, including curcumin. Curcumin is the principle curcuminoid and is responsible for the yellow color of the turmeric root. In experimental studies curcumin reduced the amount of plaque deposition, reduced oxidative damage and reversed the amyloid pathology in an AD transgenic mouse. Direct injection of curcumin into the brains of the mice with AD not only hampered further development of plaque but also reduced the plaque levels. AD symptoms characterized by inflammation and oxidation were also eased by curcumin's powerful antioxidant and anti-inflammatory properties.

Brahmi(*Bacopa monnieri*)

Brahmi is commonly used in ayurvedic medicines as a nerve tonic, diuretic, cardiotonic and as a therapeutic agent against epilepsy, insomnia and neurodegenerative disorders. The principal constituents of *Bacopa monnieri* are saponins and triterpenoid bacosaponins. Traditionally, brahmi was used to improve memory and cognitive function. The Brahmi extracts have been investigated extensively for their neuropharmacological effects and their nootropic actions. Brahmi also inhibited cholinergic degeneration and displayed a cognition-enhancing effect in a rat model of AD. Brahmi extracts protected neurons from beta-amyloid-induced cell death by suppressing cellular acetylcholinesterase activity. In addition, brahmi extract-treated neurons expressed a lower level of reactive oxygen species, suggesting that Brahmi restrained intracellular oxidative stress.

Shankpushpi(*Convolvulus pluricaulis*)

Shankpushpi is a common plant used as a whole in various formulae as a nervine tonic for improvement of memory and cognitive functions. A wide range of secondary metabolites, including triterpenoids, flavonol glycosides, anthocyanins, and steroids, have been isolated and may be responsible for Shankpushpi's nootropic and memory-enhancing properties in addition to other pharmacological activities. It is believed that Shankpushpi calms the nerves by regulating the body's production of the stress hormones, adrenaline and cortisol. It is also recommended for nervous disorders such as stress, anxiety, mental fatigue, and insomnia. In various studies memory enhancing effect was observed in a dose dependant manner. In a study, administration of aqueous root extract of Shankpushpi to neonatal rat pups resulted in improved retention and spatial learning performance, indicating its memory-enhancing properties. In addition, a significant increase in acetylcholine content was observed in the hippocampi of shankpushpi treated rats in comparison with age-matched controls. Increase in acetylcholine content in

the hippocampus is considered as neurochemical basis for their improved learning and memory.

Jatamansi

The rhizomes and roots of the plant have medicinal value and therefore, have been the focus of chemical studies. They contain a variety of sesquiterpenes and coumarins. The sedative sesquiterpene valeranone, which is also found in valerian, is a major component of the root essential oil. Other terpenoids include spirojatamol, nardostachysin, jatamols A and B, and calarenol. Jatamansi is the predominant coumarin. Studies have revealed its antioxidant, memory enhancing activity. In experimental studies it also reversed the amnesia induced by diazepam and scopolamine. Furthermore, it reversed aging-induced amnesia in naturally occurring aging of mice.

Route of administration

Next challenge in the treatment of Alzheimer's is drug delivery upto the desired site of action i.e. brain. Presently concept of novel drug delivery is on the rise in which different routes are being tried for the targeted action of drug. In Ayurveda different routes are described for the drug delivery and one among them is nasal route i.e. Nasya therapy for the targeted action on the nervous tissue as in Ayurveda 'nasa' is considered as the gateway to brain.

Conclusion

From the above discussed facts it can be concluded that Ayurveda can contribute for the prevention as well as treatment of Alzheimer's disease but in any case early

intervention is of prime importance. Although different experimental studies on Ayurvedic drugs have shown quite promising results as anti Alzheimer's agents, additional clinical trials need to be conducted to validate their therapeutic uses. Further studies regarding different routes of drug administration like nasal route should be carried out.

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Review of Sneha Kalpana w.s.r. to Novel Drug Delivery System

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Introduction

Bhaishajya kalpana implies a method or process of preparation of medicines using either a single drug or several drugs. In Ayurveda we find a number of aushadh kalpanas among which Panchvidha kashaya kalpanas are primary or basic kalpanas from which various other kalpanas have been derived till yet. The ability of man to think and rationalize the knowledge has guided him to discover innumerable remedies for various ailments from the flora and fauna around him. This quest may have led him to develop compound drug therapies from single drugs.

Sneha kalpana is a secondary kalpana derived from Panchvidha kashaya kalpanas where the active constituents present in the drugs are extracted with Sneha during the pharmaceutical process.

Sneha is an indispensable constituent of living body, thus various forms of sneha along with different routes of administration for providing nourishment to the body are quoted in our ancient texts. Sarpi, Tail, Vasa, Majja are four Sneha dravyas described in Ayurvedic texts. Sarpi among Jangama and Tail among Sthavara snehas are considered best snehas. Classically sneha kalpana is proved to have a longer shelf life than other kalpanas. Two main types of sneha kalpanas are described in Ayurvedic texts i.e. Ghrita kalpana and Taila kalpana. Sneha kalpana is a unique dosage form of Ayurveda having better pharmacokinetic action because lipid soluble substances permeate into the cells due to lipid nature of bio membranes hence having high bioavailability of drug resulting in maximum therapeutic effects. Aim of sneha paka is mass transfer of lipid as well as water soluble active constituents of drugs of herbal, mineral or animal origin to sneha dravyas.

On the other hand conventional pharmaceuticals is searching and evolving various new dosage forms with basic purpose to increase bioavailability of drug to have maximum therapeutic effects. This search has led to introduction of Novel drug delivery system which is a novel approach to drug delivery that addresses the limitations of traditional drug delivery system. Liposome is one such advanced dosage form in which nano particles having lipid bilayer surrounding an aqueous interior are formed. In this dosage form, the active compound, if water soluble is located in aqueous space and in lipid membrane if lipid soluble. The amphiphilic

molecules having similarity with biological membranes are being used for improving efficacy and safety of different drugs. Liposomes have been found suitable as slow releasing vehicles for topically applied drugs at or near the site of application. Tremendous work is being done to formulate these drugs in controlled and sustained release dosage forms for targeted drug delivery in various diseases.

Brief Summary of Sneha Kalpana

Almost every Ayurveda text has described manufacturing process of medicated taila and ghrita very systematically. According to Acharya Sharangdhar, Sneha kalpana may be defined as the medicament prepared by using one part of kalka dravya (paste of indicated herbal/mineral ingredients), four parts of sneha dravyas and sixteen parts of drava dravya in the form of water, kwatha, swarasa, kanji, mamsarasa, gomutra etc. Ratio of kalka dravyas vary according to drava dravyas used for sneha paka.

Further three types of sneha paka is mentioned i.e. mridu, madhyam & khara paka as parameters of completion of pharmaceutical process and duration of manufacturing process is described as per variation in type and proportion of constituent materials. These parameters of completion and other measures may also be used as distinguished criteria for quality control of end product.

Therapeutic Applications of Sneha Kalpana

Sneha kalpana is used in therapeutics both topically and systemically. Although most of the medicated oils are used externally but certain types of medicated oils such as Mahanarayana taila, Shadabindu taila etc. are also used systemically. However medicated ghrita are frequently used systemically. Therapeutic uses of sneha kalpana are Snehana, Vamana, Virechana, Vasti, Nasya, Abhyanga etc.

Brief Review of Liposomes

Liposome is an artificially prepared bilayered vesicle in which an aqueous volume is entirely enclosed by a membranous lipid bilayer mainly composed of natural or synthetic phospholipids. Lipid bilayer consists mainly of phospholipids and depending on number of bilayers lipids are classified into MLV (Multilamellar Vesicles);

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SUV (Small Unilamellar Vesicles); LUV (Large Unilamellar Vesicles).

Structure

Phospholipids are found in membrane composed of two layers. The heads are hydrophilic i.e. attracted towards water whereas tails are hydrophobic i.e. repelled from water. In a cell one layer of heads face towards outside of the cell attracted to the water in the environment and another layer of heads face inside the cell attracted by the intercellular water. The hydrocarbon tails of both layers face each other and hence forming a combined bilayered structure.

Drug delivery by Liposome

Liposome has unique ability to carry hydrophilic as well as lipophilic substances enclosed within it. Further due to small size and structure similar to biological membranes it can readily pass through the cell membranes to deliver the active molecules to site of action. Also it is postulated that when they reach the outside of a living cell membrane, they become accepted as part of the membrane, being of the same composition. Thus they are able to carry the enclosed substances with them into the individual cell.

Therapeutic application of Liposome

Liposomes are used as drug carriers for delivery of drugs and vaccines topically as well as systemically. Liposomes also provide sustained and controlled release of entrapped drug.

Correlation

The two dosage forms i.e. Sneha kalpana and Liposome of ayurved and conventional pharmaceuticals respectively appear very much similar in their formation, character and applications.

Preparation:- In the preparation of sneha kalpana, herbal matter, oleogenous matter and aqueous matter is taken in a specific ratio and heated at a specific temperature for a specific duration. Here the aim is to transfer lipophilic as well as hydrophilic active ingredients of herbs to the lipid media. Liposomes are

prepared on the same pharmaceutical principle but heating is not the only compulsory method of preparation. Other methods such as sonication, homogenization etc. are applied to form the liposome containing lipophilic as well as hydrophilic active molecules.

Character:- Both the dosage forms contain water soluble and lipid soluble active ingredients entrapped in them which can be used topically and systemically.

Application:- Both the dosage forms are used for topical drug delivery, targeted systemic drug delivery and as nutraceuticals.

As topical application:- Various sneha preparations are used topically in skin diseases such as Marichyadi tail, Kumkumadi tail, Jatyadi ghrit etc. and studies have proved that the drug given in the form of Sneha Kalpana produces better effect in comparison with expressed juice. Similarly liposomes are found to be suitable for localization of topically applied drugs at or near the site of application as they may act as slow releasing vehicles.

As systemic drug:- For systemic action, a drug should have smaller molecular size to enter through membranes, targeted action, more bioavailability and less biotoxicity. Liposome fulfils all these criterias and is used for targeted drug delivery in various infectious and inflammatory disorders. Similarly Brahmi ghrit indicated for neurological disorders shows its therapeutic effects because it can cross blood brain barrier. Panchguna taila considered as pain reliever may be providing relief by targeted drug delivery.

As Nutraceuticals:- Nutraceuticals are food components that have health benefits beyond traditional nutritive value. Liposome has also been applied for the isolation and incorporation of such food components in ordinary foods.

In Ayurveda many sneha kalpanas are used as Rasayanas which serve the purpose of nutraceuticals such as Amritprash ghrit, Ashwagandha ghrit etc.

Similarities between Sneha Kalpana & Liposomes

Characteristic	Sneha Kalpana	Liposome
Origin	Oleaginous	Oleaginous
Formation	Interaction between aqueous & lipid media	Interaction between lipid-lipid and lipid water molecules
Mode of action	Delivery of aqueous as well as lipid soluble medicaments	Delivery of aqueous and lipid molecules enclosed within
Presence of active ingredients	Dissolved in aqueous and lipid media	Dissolved in lipid bilayer and inner aqueous space
Route of administration	Topical, Oral	Topical, Oral

Conclusion

From the above discussion it may be assumed that SNEHA KALPANA may have the same structure and functions as that of LIPOSOME and liposomes can be assumed as developed or modified form of traditional sneha kalpana.

Further Suggestions

Herbal medicines widely used all over the world since time immemorial have been recognized by physicians and patients for their better therapeutic value and fewer adverse effects as compared to modern medicine. However the drug delivery system used for administering the herbal medicine to patient is traditional, out of date and cumbersome, resulting in reduced efficacy of medicine. This limitation of Ayurvedic dosage forms can be addressed by designing novel drug delivery system for herbal ingredients. Modern pharmaceutical research can help by solving the problems such as determination of pharmacokinetics,

accurate dosage required, mechanism of action etc. of herbal medicine to be incorporated in novel drug delivery system. So it is the need of hour to integrate the Indian System of Medicine and Novel Drug Delivery System to combat the dreadful diseases.

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“Surya Namaskara”

A boon for the maintenance of health

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Introduction

As we all know today's life style accentuates mental tensions, worries and many other problems at various levels, such as personal inter relationships, economics etc . This leads to physical and mental health related problems. Yoga is an ideal antidote to combat this type of problems. Surya namaskara is integral part of the yogic approach to these problems. Its versatility makes it special not only for induction of healthy life but also for spiritual awakening. Surya namaskara is more than a physical exercise because it stretches, massages, tones and stimulates all the muscles by alternatively forward and backward bending of the body. The human body is composed of a number of different organ systems working together to perform particular functions and to maintain the organism as a whole. Failure of one system, organ has a detrimental effect on the whole body and this causes disease. Surya namaskara interacts with the organs of the body directly, applying the pressure, massaging, stretching and generally toning up and supporting internal tissue structures. In this way it enhances our well being.

Origin of Surya Namaskara Vedic origin

There are numerous references of praising the sun for the purpose of good health and prosperity, in Vedas. Some of these vedic hymns were incorporated into nitya vidhi for the well being of an individual ,through the

salutations to the sun. These daily procedures were termed as surya namaskara. Prostration to sun showing complete surrender of oneself to God, is the main aspect of these procedures. The forms of surya namaskara practised vary from region to region. Two such popular practices are trucha kalpa namaskara and aditya prasana.

Mantras recited during Surya Namaskara

Mantras are formulated from letters of *Sanskrit* alphabet, Each letter has its own particular vibration frequency and has specific effect on the mind. Every year the sun passes through twelve different phases known as sign of zodiac in Western astrology and as the *Rashi* in *Hindu* astrology. According to *Hindu* astrology each *rashi* has specific attributes or moods and in each of these moods the sun is given a different name. These twelve names comprise the twelve Sun mantras, which are to be mentally repeated in their respective order in conjunction with the twelve movements of the Surya namaskara. The twelve mantras and asanas are given below:

The Surya Namaskar postures and breathing patterns are:

The *Surya namaskar* is performed usually early in the morning rising sun .The *namaskara* is done in twelve steps, each step has its own posture having its own breathing pattern and its own mantras.

Pranamasana : Stand facing the sun with palm folded

Beej mantras	Mantra salutation	Asana
om hrâm	om mitrâya namah	Pranamasana
om hrîm	om ravaye namah	Hasta Uttanasana
om hrûm	om sûryâya namah	Hastapadasana
om hraim	om bhânave namah	Aekpaadprasarnaasana
om hraum	om khagâya namah	Dandasana
om hrah	om pusne namah	Ashtanga Namaskara
om hrâm	om hiranya garbhâya namah	Bhujangasana
om hrûm	om âdityâya namah	Ashwa Sanchalanasana
om hraim	om savitre namah	Uttanasana
om hraum	om arkâya namah	Hasta Uttanasana
om hrah	om bhâskarâya namah	Pranamasana

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and both the thumbs touching the chest .

Breathing : Inhale while raising the hands and exhale as hands are brought down to chest level.

Hastha utthanasana: Raise hand upward, with feet firmly on the ground, bend backwards, stretch arms fully.

Breathing : Inhale while raising hands

Padahastasana : Slowly bend forward, hands touching the earth and head touches the knees.

Breathing : Exhale

Ashwa sanchalanasana : Set both hands with the palms down firmly on the ground, pull the left leg backward, raise the head looking at the sun ,full weight resting on the two palms and ten fingers.

Breathing : Exhale

Ashtanga namaskara: Stretch yourself fully on the grounds in the *sashtanga namaskara* pose. In reality feet, knees, thighs, chest, forehead touch the ground with the hands stretched out and in folded position, with your mind and thoughts on the full *namaskar*, then slowly turn the head to the sides first to left and then to right so that each ear touches the ground.

Breathing : Inhale first and then exhale fully.

Bhujangasana : Slowly raise the head, bend backward as much as possible, hands straight .

Breathing : Inhale

Parvatasana : Same as step 5

Breathing : Exhale

Ashwa sanchalanasana: Same as step 4 with the difference that the right leg is brought forward .

Breathing : Inhale

Padahastasana : Same as step 3

Breathing : Exhale

Hasta utthanasana : same as step 2.

Breathing: Inhale

Pranamasana: Same as step 1.

Breathing : Exhale, inhale and exhale.

Effects of surya namaskara on the various systems of the body are given below :

Respiratory system

In *Surya namaskara*, a deep rhythmic breathing process is synchronized with each movement. This process completely empties the lungs , all traces of stale gas and refill them with fresh, clean, oxygenated air. This

especially occurs in *hasta utthanasana* because maximum expansion of chest wall occurs in this asana. The oxygen content of the blood increases which improves the overall vitality and oxygenation of the cell and tissues of the body and brain, hence sluggishness and lethargy is rapidly overcome.

Circulatory system

The practice of *Surya namaskara* improves the function of heart. It increases the flow of blood towards the heart and speeds up the process of elimination of waste product. The cardiac muscles are strengthened and the blood vessels of the heart are stimulated to multiply, improving the circulation and reduces the chance of cardiac disorders.

Padahastasana and *Parvatasana* increases the return of blood from lower body to heart by stretching leg muscles and using the force of gravity in the inverted position. *Parvatasana* squeeze the blood out of organs and aids the exchange of oxygen and food for waste products at the cell-blood vessel wall junction.

Digestive system

The alternate stretching and compressing movements of *Surya namaskara* tone the whole digestive system. *Padahastasana* and *Bhujangasana* are good in terms of compressing and stimulating the abdominal organs. This increases the digestive fire and helps in complete and rapid assimilation of food. Proper digestion is the prime factor in overall health. When the body is unable to digest the food then undigested food ferments in the stomach and intestines creating gas, blocking the channels of elimination in the entire body. Digestive problems can be prevented by dietary regulation in combination with *Surya namaskara*.

Urinary system

The kidneys perform the vital function of regulating water and salt in the body. It also removes the impurities from the blood through urine. Any disruption in its function results in rapid salt imbalance and increased blood nitrogen levels resulting in severe illness. Through the practice of *Surya namaskara* the spine and the muscles of the back are exercised in a way which presses and gently massages the kidneys .This stimulates their action and increases the blood flow. *Bhujangasana*, *Ashtanga namaskara* and *Ashwasanchalanasana* exert a strong influence on the kidney area.

Skin

Skin is the largest body organ. One of it's main function is removal of waste products from the body through perspiration. When there is excess of waste matter in the blood it comes out through the skin in the **form of boils, rashes and pimples. The *Surya namaskara***

speeds up the circulation and enhances the elimination of waste products through the digestive and urinary systems. Many skin diseases caused by subcutaneous toxin deposits can be removed.

Nervous system

In the twelve asanas of *Suryanamaskara* the spinal column is systematically stretched and compressed and stimulates circulation in the whole spinal cord and all the nerve plexuses. *Surya namaskara* tones nerve flow by stimulating internal organs which can be compared to the flowers at the end of the stem of the plant. It stretches the nerves, works on the spine and enhances the *prana* which activates the brain centers.

Endocrine system

The endocrine glands play important role in coordination and integration of all physiological processes. The main function of these glands is the production and secretion of the hormones. These hormones act as the mobilizers and stimulate the other organs to perform their respective functions. Some of them are given below:

Pituitary gland

It is known as master gland of the body because it regulates the functions of the other glands. It secretes many hormones which have the effect on the growth and the development of the body. It increases the blood flow to the brain and through its effect on nervous system it stimulates the hypothalamus which regulates the pituitary gland.

Thyroid and parathyroid gland

The thyroid gland is located in the throat and controls the rate of metabolism, growth and development of the body. During the practice of the *Surya namaskara*, the throat area is alternatively pressed and stretched, stimulating the normal and controlled secretion of this gland. Parathyroid gland is concerned with the metabolism of calcium and phosphorus which is necessary for the development of strong, healthy bones. *Hasta utthanasana*, *Parvatasana*, *Bhujangasana* and *Ashwasanchalasana* exert more powerful action on the neck. In this way it regulates the secretion of this gland.

Adrenal gland

The adrenal glands lie on the top of kidneys which secrete many different hormones. Adrenaline which is secreted by this gland is also known as emergency hormone. Overproduction of this hormone causes a person to be constantly in a state of nervous tension and anxiety. On the other hand reduced production and secretion of this hormone causes dullness and failure to react to external stimuli. This gland also plays a part in the production of sex hormone etc. *Bhujangasana*,

Hastasana, *Parvatasana*, apply direct pressure on the middle back where the kidneys and adrenal glands are located and regulate the secretions of glands.

Reproductive organs

Surya namaskara is a valuable exercise for toning and regulating both male and female reproductive systems. The supporting muscles of the uterus and vaginal walls are strengthened. *Asanas* such as *Bhujangasana*, *Padahastasana* and the *Ashwa sanchalanasana* especially tone this area.

Points to keep in mind while doing surya namaskara

- Each movement should be performed with minimum of effort.
- In *padahastasana* the legs should remain straight. It is possible that in the starting phase this asana will not be performed correctly but practice will gradually stretch the tendons muscles of the back and legs, ultimately correct posture will be assumed.
- Once both the hands are placed on the floor on either side of feet in position 3 they should remain at this point until leaving position 10.
- The feet have been placed together in position 5 they should remain at this point until moving out of position 8.
- During *ashwasanchalasana* the knee of the extended leg should touch the floor. the foot of the other leg should remain between the hands.
- In *parvatasana* try to bring heels onto the floor.
- The ideal time to practice SN is at sunrise, but can be done at any time, provided stomach is empty.

Number of rounds

There is no set rule as to how many rounds of *Surya namaskara* are practised. It should never be continued upto the point of exhaustion. *Surya namaskara* is a powerful exercise which if overdone can lead to unpleasant aches and pains.

Contraindications for Surya Namaskara

1. Children under the age of 8 can not do *Surya namaskara*.
2. It should not be practised by the people suffering with high blood pressure, coronary artery disease etc.
3. People with the spinal problems such as slipped disc and sciatica should not practise *Surya namaskara*.
4. During menstruation it should be avoided in case of heavy bleeding or painful periods.
5. During pregnancy it can be practised until the beginning of twelfth week.
6. Following child birth it can be recommenced for retoning the uterine muscles.
7. It should not be practised by people having the problems of rheumatoid arthritis, osteoarthritis.

Ayurvedic Concept Of Madatyā w.s.r To Alcoholism

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A need for daily use of large amount of alcohol for adequate functioning, a regular pattern of heavy drinking not limited to weekends and long period of sobriety interspersed with binges of heavy alcohol intake lasting for weeks or months strongly suggest alcohol dependence and alcohol abuse. Alcoholism is a very common problem that is usually described as habit rather than medical condition. People who are addicted to alcohol deny that they have a drinking problem. National statistics indicate that morbidity related to alcohol closely correlates with mean per capita consumption. Men are more likely to have alcohol related problems than women. Approximately $\frac{1}{4}^{\text{th}}$ of male patients in general hospital medical wards have a current or previous alcohol problem. Alcohol addiction is a state of physical dependence on alcohol. This condition occurs gradually as alcohol alters the balance of some chemicals in the brain. There is no single molecular target identified as the mediator for the effect of alcohol. It has been found that alcohol ion channel activities associated with the nicotinic acetylcholine, serotonin 5-hydroxytryptamine and gamma-amino butyric acid type A (GABA) receptors are enhanced by alcohol whereas channel activities associated with glutamate receptors and voltage gated channels are inhibited. When alcohol abuse reaches the alcohol dependence stage, the person also experiences at least three of seven other symptoms, including neglect of other activities, excessive use of alcohol, impaired control of alcohol consumption, persistence of alcohol use, large amounts of time spent in alcohol-related activities, withdrawal symptoms and tolerance of alcohol.

Types of alcohol :- Although, the nomenclature 'Alcohol' denotes the entire family of organic compounds like methanol, ethanol, isopropanol, in more general terms we denote 'Ethanol' when we discuss alcohol, the most commonly ingested of these chemicals.

Absorption and Distribution Mechanism- About 10% of consumed alcohol is absorbed from stomach and remainder from the small intestine from where it gets distributed throughout the human body. Peak blood concentration of alcohol is reached in 30 to 90 minutes. It also depends upon, whether the alcohol was taken on an empty stomach or with food. When consumed,

alcohol first irritates the mucous lining of mouth and then esophagus, causing an anesthetic effect. Alcohol travels through blood and come into the vicinity of cells of almost every organ. As mentioned earlier, due to its high affinity towards water, it can penetrate almost all cellular membranes resulting in absorption by all organs. The body has also protective devices against inundation by alcohol. If the concentration of alcohol in the stomach becomes too high, mucus is secreted and pyloric valve closes. These actions slow the rate of absorption of alcohol and keep the alcohol passing into the small intestine.

The term 'alcoholism' in Ayurveda defined as 'mada' which literally means addiction, lust, madness, loss of intellect, unconsciousness. Ayurveda explains the following as the properties of Alcohol

- Light
- Hot
- Sharp
- Finely entering
- Sour
- Quickly absorbed
- Quick acting
- Rough
- Depressant
- Non slimy

Ayurveda advises strong precaution in usage of alcohol as medicine and diet, as it possesses all the opposite qualities of Ojas (Life energy of human body). If taken improperly may destroy the life energy in turn may kill the person. At the same time Alcohol acts as nectar and can save life of a person if used judiciously.

Alcohol taken in appropriate manner produces exhilaration, energy, happiness, nourishment, good health, improves the appetite, tones up the heart, promotes the voice and complexion. It brings the feeling of refreshment, perfection and strength and removes fear, grief and fatigue. It induces sleep for the insomniac, stimulates speech for the timid speaker, awakens those who are in sleepy mood, corrects the constipation and gives relief to the mentally disturbed. Even the disorders caused by wine are countered by wine itself. The person addicted to alcohol does not differentiate between the right or wrong, good or bad, happiness or unhappiness, suitable or unsuitable; he does not even know how to behave and talk. Alcohol addiction produces confusion, fear, grief, anger, death and diseases like insanity, intoxication, narcosis, epilepsy and convulsions. Alcohol, which is responsible for the derangement of memory, though composed of other good qualities, is totally

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contraindicated for consumption. All of above said problems depend upon the concentration of alcohol in blood. At the level of 0.05 % alcohol in the blood thought, judgment and restraint are loosened and sometimes disrupted. At the concentration of 0.1% voluntary motor action usually become perceptibly clumsy. At 0.2% the functions of the entire motor area is depressed and the parts of the brain that control the emotional behavior are also affected. At 0.3% a person is commonly confused. At 0.4 to 0.5% the person falls into coma. At higher levels the primitive centers of the brain that control breathing and heart rate are affected.

Alcohol produces different types of disorders if used by persons who are in rage, frightened, thirsty, in grief, hungry or exhausted due to physical exercise, and those who have suppressed the natural urges, overloaded the stomach with excessively sour and pungent foods, taken heavy food even when the previous food is not digested, weak persons suffering from heat exhaustion, those who drink alcohol on an empty stomach daily with food develop many troublesome diseases which ultimately become fatal.

General features of alcohol intoxication are delusions, pain in the heart region, diarrhea, constant thirst, fever, complete loss of appetite, pain in head, back, flanks and joints, tremors, cutting pain in the vital parts, catching pain in the back (scapular region), obstruction of the chest, unconsciousness, cough, dyspnoea, total loss of sleep, excessive perspiration, indigestion, complete body swelling-especially the limbs, disorders of the mind, irrelevant talk, excessive salivation.

Ayurvedic management of Alcoholism

- **Administration of alcohol as medicine:** It is to be administered properly with great caution, otherwise withdrawal symptoms may appear.
- **Administration of milk:** If the above methods are not yielding good results, then administration of wine should be stopped immediately and use of milk should be started. After the dryness and burning sensation etc. are reduced, milk should also be withdrawn slowly with substitutes of diet.

Schedule for giving up the addiction - On the first day one should give up a quarter of the alcohol and correspondingly adopt a quarter of normal liquid diet (fruit juice, milk etc). On the 2nd day half of the alcohol is to be given up and half of the normal liquid diet is to be adopted, this is to be continued for 3rd day also. On the 4th day, $\frac{3}{4}$ th of the alcohol is to be given up and $\frac{3}{4}$ th of normal liquid diet is to be adopted. This process is to be continued on the 5th day and 6th day also. The process of giving up of alcohol and adoption of normal liquid diet is completed fully on 7th day. By slowly and gradually

giving up alcohol and increasing the fruit juice i.e normal diet correspondingly the alcohol intake is eradicated for ever and the wholesome foods are fully adopted.

Treatment for hangover (Paramada)-

- Kashmarya, Dharu, Vida, Dadima & Pippali along with Draksha should be added to water and drink should be made, to which Beejapuraka juice should be added and if quickly taken as a drink, the condition of hangover gets totally relieved in no time.
- Draksha, Sugar, Madhuka, Jeeraka, Dhanyaka and Trivrit should be similarly prepared and taken as a drink.
- On the same day, meat soup of animals (wild, fatty) with Sauvarchala salt and citreous fruits juices should be advised. Bath with water processed with Bharangi root is also beneficial.

Treatment for indigestion for alcoholism (Pana- Ajeerna)

- Ikshvagu, Damargava, Vrکشhaka, should be cooked with milk and given to induce vomiting.
- Further, in the evening, the person should drink the wine again as prescribed to restore the digestive fire.

Treatment for acute intoxication (Pana Vibrama)

- Syrup prepared from Draksha, Kaphitta, Citreous fruits and Dadima with lot of honey and sugar should be taken.
- In the same way, Amratarka and Kola should be used as syrup.
- Syrup prepared from Karjuraka, Vetraka, Kareera, Draksha, Trivrit, and Sripati with sugar should be used in the cold state.
- Tender leaves of latex trees, Bisa, Jeeraka, Naga Pushpa, Patra, Ilavalu, Sitasariva, Padmaka, Arata, Bhavya, Karamardha, Kaphitha, Kola, Vrکشhamla, Vetrphala, Jeeraka and Dadima should be taken after adding Yashti and Utphala as a cold drink.

Psychological measures: Alcohol does not cause alcoholism without causing agitation of mind and causing morbidity in the body, hence exhilarating measures are necessary. Following measurements may help in fast recovery from the intoxication: beautiful parks, ponds with lotus flower, good food and drinks, pleasing companions, garlands, perfumes, washed clothes, melodious music, entertaining parties, ample arrangement of talks, jokes and songs.

Concept of Vyadhikshamatva in Ayurveda

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Introduction:

Ayurveda is the oldest medical system of the world which has a scientific base. By review of vedic literature, it has been found that medical system in vedic period was analytic i.e. based on external approach towards the disease either pharmacological or non-pharmacological. But later on it become synthesized with the theory of kshetravada which says that seeds of any disease are capable to grow only in favorable land of body. In other words, body opposes the pathogenesis of any disease according to its opposing power. If body fails in this process, disease is appeared. In Ayurveda this disease opposing power is known as vyadhikshamatva. This term refers the meaning of immunity and has mentioned in Charak Samhita but Acharya Charak did not defined the term. The popular commentator of Charak Samhita, Acharya Chakrapani has defined it later on. Basically, it shows the concept of immunity in Ayurveda. The responsible factor for it is termed as oja and bala. This concept has been accepted by all the Ayurvedic seers universally. Oja is the vital component of life; it is not only responsible for the immunity but also accepted as essential for the initiation and maintenance of life. So, the concept of immunity is broad spectrum in Ayurveda as compared to modern medical science.

Concept of vyadhikshamatva:

The word vyadhikshamatava has been given by Acharya Charak, It comprises two words i.e. “vyadhi” and “kshamatava”. The literal meaning of word “vyadhi” is disease and “kshamatava” is to resist. So, the literal meaning of word vyadhikshamatva is disease resistance but this word has the meaning more than it. Acharya Chakrapani has defined this term in a very scientific way i.e.

व्याधिक्शमत्वं व्याधिबलविरोधित्वं व्याध्युत्पादप्रतिबन्धकत्वमिति यावत् ।

Means vyadhikshamatva is the body mechanism which compensates the disease potency as well as it also stops the disease initiation. In this definition Acharya has defined the term in two parts, i.e. first part indicates the mechanism of vyadhikshamatva whereas the second part is related with characteristics and identity of vyadhikshamatva.

One another word has also been used for disease

resistance i.e. bala. It is synonymous to vyadhikshamatva and has been defined as-

बलं ह्यलं निग्रहाय रोगाणां । (च० चि० 3/166)
बलं ह्यलं दोषहरं परतंच बलप्रदम् । (अ० ह० चि० 1/49)

So, bala also compensates the disease. Here one point should also be kept in consideration that bala is the physiological factor which is responsible for the mechanism of vyadhikshamatva. The anatomical factor related with vyadhikshamatva is oja. In this way two points are derived, i.e.

1. Disease resistance, modification and prevention system of the body is vyadhikshamatva.
2. Anatomical component responsible for vyadhikshamatva is oja while physiological is bala.

It has been previously stated that responsible factor for vyadhikshamatva is oja which is termed as bala too. It is the specialty of Ayurveda that the concept of vyadhikshamatva or immunity has been established on the basis of kshetravada with psychosomatic approach as life is combination of materialistic and spiritual components. Here in context of vyadhikshamatva, it is necessary to say that all kind of miseries have been accepted as disease in Ayurveda. So, vyadhikshamatva is related or able to protect each and every type of misery. This fact has been supported by Acharya Charak as he has stated “शरीरसत्त्वयो” for sahaj bala which includes both types of vyadhikshamatva i.e. physical as well as mental. Only one factor is responsible for both types of vyadhikshamatva. This is known as oja at anatomical level and bala at physiological level.

So, the concept of vyadhikshamatva is not only circumscribed to immunity. It is a broad spectrum word and denotes the factor or fact which is essential for the maintenance of homeostasis of every cell, every tissue, every system and thus whole body. Even it is responsible for the maintenance of homeostasis at mental level also.

Anatomical consideration of Vyadhikshamatva: It has been previously stated that oja is the responsible factor for vyadhikshamatva at anatomical level. Oja is the essence of all seven dhatu. It is essential for the continuation and maintenance of life from the time of conception. According to Acharya Chakrapani it is of two

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types i.e. para oja and apara oja. The seat of para oja is heart and apara oja is found in every part and every dhatu of the body. Amount, appearance, color, etc of both types of oja has been described in texts. Any type of pathology related with apara oja is manifested as various types of diseases while pathology related with para oja is manifested as death. Actually, according to Ayurvedic point of view anatomical structures are of two types i.e. some are stable in number, quantity, etc while some are unstable and variable. But the existence of these stable structures depends upon the unstable structures. The stable structures are different organs, system, etc while unstable structures are termed as dhatu. The correct quantity and quality must be present in the body for the maintenance of anatomical structures. The status of dhatu in terms of quality and quantity totally depends on diet. Diet is converted according to various dhatu by their corresponding agni and fulfill the day to day decay of dhatu. As the agni process is becoming advanced, quantity of formed dhatu is becoming less like rasa dhatu (primary dhatu) has the quantity of nine anjali while sukra dhatu (last dhatu) has only half anjali. Oja is related with finest and essence portion of all finally formed seven dhatus. Therefore, it is much less in quantity like eight drops only of para oja and half anjali of apara oja. It is collected from all dhatu in the form of guna like bees collect honey from flowers. The guna of oja are ten in number like guru, shita, mridu, shlakshna, bahala, madhura, sthira, prasanna, pichhila and snidha (Ch. Chi. 24/30). These are the protective guna among twenty gurvadi guna. Therefore, oja protect the body from every type of disease causing factor (which may be biological, physical, mental, emotional, etc.). The function of oja is initiation, continuation and maintenance of life. Acharya Charak has been described the anatomical characters of a person with appropriate oja-

सममांस प्रमाणस्तु समसंहननो नरः ।
दृढेन्द्रियो विकाराणां न बलेनाभिभूयते ॥
(च० सू० 21/18)

means a person with appropriate quantity of mansa dhatu, compactness of body and intact indriya never affected by diseases. Now, it can be said that there is great relationship between mansa dhatu and oja which will be discussed later.

Physiological consideration of Vyadhikshamatva: The physiological component of vyadhikshamatva is bala. It can be said that 'bala' is the power which is responsible for the maintenance of homeostasis of each cell and thus whole body. Anatomical and physiological components of the body require the maintenance of homeostasis at every level for the proper and smooth functioning of life and thus sukhayu and hitayu. A human being interacts with

various factors from morning to evening. These factors may be physical, mental, emotional, behavioral and so on; the list is endless. Some of these factors may be helpful in the maintenance of health while some tend to disturb the homeostasis of the body. So, this interaction may have positive impact on health or negative impact, depending on type of interaction and nature of interacting factors. If result of interaction is positive, it is accepted by the body; but if result of interaction is negative, it is discarded by the body. This process of opposition as well as destruction against various harmful results of different interactions are carried out by bala. In other words it can be said that bala is power of every cell which opposes and destroys the harmful effects of various activities made by human being or by accident; and consequently bala is essential for the maintenance of homeostasis of every cell. Acharya Charak has mentioned three types of bala i.e. sahaaj bala (natural) like kaphaj predominant persons have more bala than others, kalaj bala (due to particular season) like bala of the people is increased in winter; and yuktikrit bala (due to bala increasing various activities) like utilization of exercise, milk, ghrita, etc. Acharya Charak has described the physiological characters of a person with appropriate bala-

क्षुत्पिपासातपसहः शीतव्यायामसंसहः ।

समपक्ता समजरः सममांसचयो मतः ॥

(च० सू० 21/18)

means a person with well tolerance of urges due to hunger and thirst, cold, sun-rays, physical exercise as well as have the homeostasis of agni with digestion, assimilation and biotransformation; and proper metabolism of muscular tissue is considered as having the appropriate amount of bala.

Mechanism of vyadhikshamatva: The bala of any individual is due to ten guna of oja. These ten guna of oja opposes their respective opposite guna present in the causative factor which has the tendency to destroy the oja in the body. The disease will manifest or not; it depends on the intensity, quantity and duration of exposure with causative agent or factor; as well as condition and strength of oja and its guna. Each guna opposes and try to destroy its respective opposite guna. It can be easily understood by the table (**Table No. 1**) which has been taken from book "Vyadhikshamatva: Ek adhyayana" of my teacher Dr BK Dwivedi.

In this struggle whichever guna is found stronger, that decides whether the disease is manifested or not. For instance if protective gunas are stronger, disease will not manifest and contrary to it, disease will manifest.

Table No. 1

Rakshak Guna	Akramaka Guna	Competitive Guna
1.Guru	1.Laghu	1.Guru- Laghu
2.Sita	2.Ushna	2.Sita- Ushna
3.Mridu	3.Tikshana	3.Mridu- Tikshna
4.Slakshana	4.Vikasi	4.Slakshna- Vikasi
5.Bahala	5.Sukshma	5.Bahala- Sukshma
6.Madhur	6.Amla/Anirdeshya rasa	6.Madhur- Amla
7.Sthira	7.Vyavai/Chala	7.Sthira- Vyavai
8.Prasanna	8.Ashu	8.Prasanna- Ashu
9.Picchila	9.Vishada	9.Picchla- Vishada
10.Snigdha	10.Ruksha	10.Snigdha- Ruksha

Discussion:

Life is the combination of materialistic and spiritual components. Homeostasis of each component is required for continuation of healthy and complete life-span. Different types of activities are being performed by any individual in daily life. Homeostasis of various components of life tends to disturb by these daily activities. Therefore, there is a factor which protects the homeostasis of each component of life against the various harmful effects of daily routine and this factor is 'vyadhikshamatva'. Like all bodily factors, vyadhikshamatva also has two components anatomical and physiological. Anatomical component of vyadhikshamatva is oja while physiological component is bala. Oja is essence of all the seven dhatu and present in whole body. It is essential for the initiation, continuation and maintenance of the body as it is essential for the maintenance of homeostasis at every level. Such type of anatomical component has not been searched since now. But it is not only hypothesis as its functions and effects are seen in daily life. It has been widely accepted that oja is the essence or sara of all seven dhatus but its closed relationship has been seen with mansa dhatu if various text are observed. Acharya Charaka has included status of mansa dhatu in the standard parameter of a person with sufficient oja from both points i.e. anatomical and physiological. Acharya Sushruta has described that oja is essential for upchaya (anabolism) of mansa dhatu and vice-versa. It has also stated that person with less mansa dhatu (i.e. atikrisha) cannot tolerate the effects of exercise, excessive hot and cold, urges of hunger and thirst, diseases, medicines, excessive coitus, etc. So, it can be said that correct amount of mansa dhatu is essential for the proper anatomical status of oja. As well as correct placement of mansa dhatu, in the terms of compactness, should also

be maintained in the body according to standard pramana described in the texts; otherwise obese persons should have excess amount of oja as mansa dhatu is found in plenty in those persons. Consequently, obese persons should be more immune for diseases but it is not seen. However, such type of any study has not been taken place.

Effect of oja is bala and it is due to ten guna of oja. Actually like other bhava padartha, life also contains dravya, guna and karma. Dravya of body is seven dhatu and guna are twenty gurvadi guna. Karma is various activities, reactions, etc. which are being taken place in the body as well as various activities which are performed by individual in daily routine. Karma totally depends on dravya and guna. Twenty gurvadi guna basically includes two groups of guna i.e. guru-laghu, shita-ushna, snigdha-ruksha, manda-tikshana, sthira-sara, mridu-kathina, picchila-vishada, slakshana-khara, sthula-sukshma and sandra-drava. One guna of every pair opposes another guna i.e. guru opposes laghu guna. Body has also been considered according to pancha-mahabhuta. Major parts of the body comprise of prithvi and jala mahabhuta. It can be seen in garbhavakranti sharira that parthiva and apya bhava give major contribution in the formation of garbha. The first guna of every pair which is mentioned above, is the basic guna of prithvi and jala mahabhuta and these guna resembles with guna of oja. So, these are essential for the maintenance of body. It does not mean that rests of the guna are not required in the body. Those are also required by the body but have less importance in comparison to others because excess of these guna leads to destruction of oja and consequently manifestation of diseases. So, the guna of oja in the form of bala protects the homeostasis of body in each situation and at every level.

Conclusion:

The whole paper can be concluded under following points-

1. Vyadhikshamatva is the mechanism by which homeostasis of components of life has been maintained in every situation and every level and thus protects the body from various diseases.
2. The responsible factor for vyadhikshamatva is oja and bala. Oja is anatomical component while bala is physiological.
3. Oja is the essence of all seven dhatu and essential for the initiation, continuation and maintenance of life. Although such type of anatomical entity has not been searched yet now but effects are well known.

4. Bala is the power which opposes the harmful effects of various activities in daily routine.
5. Strength of bala is due to ten guna of oja. There is a great relationship between oja and mansa dhatu but not practically proven.

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To Contributors :-

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- The Main title, indicative of the content & references should be in brief.
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Pipali

Prof. Anup Kumar Gakkhar

Pipali is one of the main ingredient in various formulations mentioned in Charak Samhita. It has been described as one of the constituent of *shirovirechan* and *vaman dravya*. (Ch.su 2/3,7). It is used in the preparation of *deepaniya*, *shoolghana*, *krimighana* and *pipasaghan yavagu*. (Su2/18,23,24) *Pipalimoola* is a constituent of *deepaniya*, *shoolghana*, and *vata anulomini*. *Pipali* is also one of the constituents of *deepiniya mahakshaya*, *kanthya mahakshaya*, *tripatighana mahakshaya*, *asthanopaga mahakshaya*, *shirovirachnopa mahakshaya*, *hikkanigrahan mahakshaya*, *kashar mahakshaya*, *shoolprashman mahakshaya*. (Su 4/9,10, 11,13,14,16,17,). *Triphala kwath* processed with *Pipali* and *Haritaki* is indicated in over saturation (Su 13/92). A *mantha* prepared with the oil, *ghrita* and honey and is indicated for *tarpan* in diseases like *jwara*, *kasa*, *krishta*, *urdhava vata*. (su23/35) Use of *pipali* with milk is indicated in the treatment of *mada* and *moorcha*. *Pipalimoola* has been described as the leading drug in its function of *deepinya*, *pachniya* and pacifying *anaha*. (Su 25/40). In spite of being *katu* *pipali* is *vrishya*. (Su26/51). Barring *pipali* and *shunthi* all other *katu* substances aggravate *vata*. (su27/4). Green *pipali* is *kafkarak*, *madhur*, *guru* and *snigdha* while dry *pipali* pacifies *kafa* & *vata*, *katu*, *ushna* and *vrishya*. (Su27/297).

Excessive use of *pipali* is contradicted. (VI- 1/15). Owing to its property of producing excess of *kleda* its immediate use is responsible for the *shubh* and *ashubh* karma. Being *guru* and having *kaleda* producing nature its continuous use causes *utklesha* of *kafa*. Being *ushna* it causes aggravation of *pitta*. Due to little *sneha* and less *ushna* it fails to pacify *Vata*.

It is definitely *yogvahi*. (VI-1/16). *Yavagu* prepared with *pipali*, *pipalimool*, *chavya*, *chitrak* and *shunthi* is used after the *basti*. *Pipali* has been included in drugs related to *vaman*, *shirovirechan*. (vi 8/135,151) It is also included in the group of *katu dravya*. (VI 8/142)

Among various drugs to be kept handy for the preparation of delivery of a woman *pipali* too finds its mention. (Sh 8/34). The *yoosh* of *pipali* along with other drugs helps in ejecting placenta during the delivery. (Sh 8/41) Use of *ghrit* or oil processed with *pipali*, *pipalimool*, *chavya*, *chitrak*, *shunthi* is given to a woman after delivery. (Sh 8/48) There are sixteen references of *pipali* used in the context of *rasayana*. *Pipali* is among the nine drugs that are used for *sanshodhan* for *rasayana*.

(Chi- 1/1/25) *Pipali* is a constituent drug of *raasayan* formulation second *Brahm rasayana*. (Chi 1/1/58), *chyavyanprash* (Chi 1/1/68), *pancham haritaki yoga* (Chi 1/1/76), *Haritkyadi yoga* (Chi 1/1/77), *Amlaka avleha* (Chi 1/2/7), *Amlak churna* (Chi 1/2/8), *Amlakavleha apar* (Chi 1/2/10), *Amlak ayas brahm rasayan* (Chi 1/3/3), *Triphala rasayan* (Chi 1/3/46).

Pipali formulations described for *vajikarna* like *brahmni gutika* (Chi2/1/27) *vrishya ghritam* (Chi 2/2/21) *vrishya pipali yoga* (Chi2/3/13) *vrishya shtavari ghritam* (Chi2/3/18). *Pipali* is useful in *jwara* too. When the *doshas* are blocked in *amashya* and *pakvashya peya* of *pipalimool* with *chavya*, *amlakmradvaka nagar* is indicated. (Ch3/186). Drugs like *Pipali ghrita*, (Chi 3/219) *vasa ghrita* (Chi 3/223) *guduchyadi niruha basti* (Chi 3/248), indicated in *jwara* have *pipali* as one of the ingredient as *pipali*. *Anjana* mentioned in *visham jwara* contains *pipali* in it (Chi 3/306). Drugs like *hapushadi ghrita*, (Chi 5/71), *bhallataka ghrita* (Chi5/144) *ksheershatpalak ghrita* (Chi 5/147), *dantiharitaki* (Chi 5/160), mentioned for *gulma* contain *pipali* in them. *Shatyadi churna* mentioned in *gulma* contains *pipalimoola*. (Ch 5/87) *Vatya* with *pipali* as a main constituent given with *yoosh* of *moong dal* gives relief to the patients of *udavarta* and *vataja gulma*. (Chi5/98). Drugs like *madhvasava* (Ch6/42) mentioned for the treatment of *prameha* contains *pipali* as a component. *Nasya* indicated in *kushtha* for pacifying *krimi*, *kafa* and *kushtha* contains *pipali* as one of the component. (Chi 7/48).

There are many formulations mentioned in Charak Chiktsa Sthan which have *pipali* as one of the ingredients in it. For instance, there are *Lepas* (Chi 7/160), *Nasya* in *rajyakshma* Chi 8/91, *Kharjooradi ghrita* 8/96 *Dashmoolaghrita* 8/97, *Yakshmanashak leha* 8/100, *Sitopladi churna* 8/103, *Duralabha ghrita* 8/108, *Jeevantiyadi ghrita* 8/112, *Mukhvaryasa nashak yoga* 8/137, *Yavani shadav churna* 8/142, *Talishadi churna* 8/145, *Panchkola ghrita* 8/168, *Rasnaghrita* 8/170, *Dhoopan dravya* and *pradheya* in *apasmara* 10/37, *Pradhamn nasya* in *apasmara* 10/45, *Madhukadi yoga* in *urakshat* 11/20, *Pipali* and honey increases *maans* and *shonita* 11/30, *Ghrita* useful in *urakshat* 11/33 *Amritprash ghrita* 11/37, 2nd *sarpiguda* 11/58, 4th *sarpiguda* 11/6 *pipali sharkara* with milk for *urakshat* 11/79, *Triphalaydi arishta* 12/39, *krishandi churna* 12/41 too contain *pipali* in them.

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Concept of Agni In Ayurveda

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Introduction:

There is a great importance of agni in ayurveda because it plays an important role in digestion which is very essential for healthy and wealthy life.

In common language AGNI means fire, but in Ayurveda it is specially used in the sense of digestion and metabolism. According to Sanskrit grammar its Nirukti is.

अंगति व्याप्नोति इति अग्निः ।।

It means which exists in each and every cell of the human body or which occupies the entire body.

अग्नि के पर्याय (Other names of Agni) :-

वैश्वानर (Vaishvanara), वह्नि (Vahni), धनन्जय (Dhananjaya), अनल (Anala), पावक (Pavaka), कृशानु (Krishaanu), शिखी (Shikhee), शिखावान् (Shikhavaan), हुतभुक् (Hutabhuka), तनुनपात (Tanunapata), शिचिः (Shichih), वृत्तहा (Vritaha), हिरण्यकेश (Hiranyakesha), अर्हत (Arhata), असुर (Asura), सर्वपाक (Sarvapaka) etc. although there is only one agni in human body but according to its function in the human body it is known by different names.

According to Charaka :-

अग्निरेव शरीरे पित्तान्तर्गतः कुपिताकुपितः शुभाशुभानि करोति
(च. सू. 12/11)

Acharya Charaka has described agni as 13 types of Agni which are classified into 3 types.

- 1) Pachakagni - 1
- 2) Bhutagni - 5
- 3) Dhatvagni - 7

Total - 13

1. **Pachakagni:-** It is one in number and situated in the abdominal cavity. Due to its existence in the Udara or jathara it is also known as jatharagni. It is also known as pachakagni, pachaka pitta, koshtagni and antaragni
2. **Bhutagni:-** Human body is composed of pancha mahabhutas. Bhutagni is a part of agni which is responsible to convert panchabhautika part of food (ahaara) in to pancha bhautika part of body

constituents.

3. **Dhatvagni:-** Dhatvagni is one of the types of agni which located in srotas related to particular dhatu and helps in assimilation of respective dhatu component. According to Acharya Charaka agni abiding living body, assimilating in Pitta, brings about physiological or pathological manifestation.

JATHARAGNI

Jathara means udara (abdomen). There fore the agni which exists in the UDARA(abdomen) and is responsible for digestion is known as jatharagni. It is also known as dehagni, pachakagni, pakagni, koshtagni, pachaka pitta & anataragni. It is best among all because it controls all the agnis by its power.

Location:- it is situated in the alimentary canal but exact location is between stomach and large intestine i.e. Grahani.

According to Charaka:-

अग्निरेव शरीरे पित्तान्तर्गतः कुपिताकुपितः शुभाशुभानि करोति
(च. सू. 12/11)

Agni abiding living body, assimilating in pitta, brings about physiological or pathological manifestations.

Pachakagni is superior among all the agnies, Because Bhutagnies & Dhatvagnies depends upon Pachakagni. If Pachakagni is active then all the agnies becomes active.

(Ch. Ch.15/38)

Susruta:-

It is situated in the sastipitta dhara kala which Is situated between amasaya & pakvasaya the Exact place is grahani.

(Su. U.T.40/169)

At another place susruta has also describe that Pitta situated between amasaya & pakvasaya The exact place grahani is known as pachaka Pitta.it helps in the digestion of four types(asita,

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Khadita, Peya, and Leha) of food taken by oral Route. It also divides the ahara rasa after digestion into Sara & Kitta Bhaga. The pitta situated in This location influence all the pitta by its power (strength) to perform their normal functions.

Vagbhata:-

The pitta situated between stomach and large Intestine, the exact place Grahani is Panchabhutatamaka and due to predominance of tejasa & Drava guna is responsible for digestion of food hence called Pachaka pitta. It also divides the ahara rasa into Sara & Kitta Bhag. It provides energy to all the pitta by its power(strength). It is best among all the pitta.

Charaka:-

अन्नस्य पक्ता सर्वेषां पक्त्वानामधिपोमतः ।
तन्मूलास्ते हि तद्वृद्धिक्षयवृद्धिक्षयात्मकाः ॥

(च.चि. 15/37)

Pachakagni is best among all the 13 types of AGNI because Bhutagni and Dhatvagni depends upon them.

BHUTAGNI

It is one of the varieties of Agni.

According to Charaka there are five types of Bhutagni

- 1) Prithvi Agni
- 2) Jala Agni
- 3) Tez Agni
- 4) Vayu Agni
- 5) Akash Agni

It is mentioned in the samhita that “Pancha Bhutatmakang Dehe Ahara Pancha Bhautikam”. Our body is composed of five Mahabhutas & Ahara taken from oral Cavity is also Panchabhautika. Jatharagni digests all the food in to a common digested substance but Bhutagnies digest the qualities(attributes) of Ahara dravyas. So Bhutagnies also play an important role in the digestion of Panchabhautika Ahara taken by oral cavity. Each Mahabhuta has its own agni these agnies digest the qualities of ahaara dravya which is present in the every Ahaara dravya. Its action begins just after the action of Jatharagni.

For example:- Food containing Prithvi Mahabhuta (earth element) are digested by Parthiva bhutagni, food containing jala

Mahabhuta are digested by Jala Bhutagni. food containing Teja Mahabhuta are digested by Teja Bhutagni., food containing Vayu Mahabhuta are digested by Vayu Bhutagni & food containing Akash Mahabhuta are digested by Akash Bhutagni.

In this context the opinion of Acharya Charaka is very remarkable as he has described .

भौमाप्याग्नेयवायव्याः पंचोष्माणः सनाभसाः ।
पंचाहारगुणान्स्वान्पार्थिवादीन्पचन्ति हि ॥

(च.चि. 15/13)

The five Bhutagnies Prithvi, Jala, Teza, Vayu, and Akasha thereafter, bring about transformation (paka) of five categories for example prithvi, jala, teja, vayu and akaash attributes (Gunas) of food ingredients respectively.

यथास्वैरेव पुष्यन्ते देहे द्रव्यगुणाः पृथक् ।
पार्थिवाः पार्थिवानेव शेषाः कृत्स्नशः ॥

(च.चि. 15/13)

Thus, the five Mahabhutas as well as their attributes in the tissues elements in the body are nourished by the five mahabhutas and their attributes in the food respectively. In other words Parthiva ingredients and respective attributes of the tissue elements get nourishment from the Parthiva ingredients and their attributes in the food. Similarly, other Mahabhutas and their attributes in the tissue elements are also nourished by their respective ingredients and attributes in the food.

DHATVAGNI

Dhatvagni is also one of the varieties of agni. Its Action starts just after the action of Bhutagni. It is the opinion of ayurvedic acharyas that Ahara rasa produced after the action of Jatharagni & Pancha Bhutagnies can not be converted in to Saptadhatu without Dhatvagni paka. So Dhatvagni plays an important role in the formation or nourishment of Saptadhatu.

There are seven types of Dhatvagni & each dhatu contain its own agni.. Their name are as given below.

- 1) **Rasagni**
- 2) **Raktagni**
- 3) **Mansagni**
- 4) **Medagni**
- 5) **Asthiagni**
- 6) **Mazza agni**
- 7) **Shukragni**

The action of Dhatvagni starts just after the

action of Jatharagni & Bhutagni. The Sara Bhaga produced from Ahara rasa after Jatharagni & Bhutagni Paka is circulated in the channels (Srotasa) of Saptadhatu where the process of Dhatvagni Paka begins.

Some parts of Sara bhaga is circulated in the Rasa vaha, Raktavaha, Mansavaha, Medavaha, Asthivaha, Majjavaha and Shukravaha srotasa, and in each srotasa circulated ahara rasa is acted upon by its dhatvagni and after the dhatvagni paka in each srotasa that sara bhaga is converted into rasa, rakt, mansa, meda, asthi, majja and shukra dhatu. For example: the portion of sara bhaga which is circulated in rasa vaha srotas is acted upon by rasa dhatvagni and after the action of dhatvagni paka that sara bhaga is converted into rasa dhatu. Similar

process is also applicable to the formation or nourishment of all the dhatus. In this context the verses (shlokas) of Acharya Charaka is very remarkable which is given as:-

सप्तभिर्देहधातारो धातवो द्विविधं पुनः ।
यथा स्वमग्निभिः पाकं यान्ति किट्टप्रसादवत् ॥
(च.चि. 15 / 15)

In this Shloka Acharya Charaka has clearly mentioned that all the seven dhatus contain their own agni. This agni once digests already digested food products (sara bhaga of the Ahara Rasa) in to two parts. First part is called sara which actually nourishes the concerned dhatu and second part is useless for concern dhatu that is called kitt bhaga. In this way dhatvagni paka plays an important role.

Concept of *Agni* in *Amavata* w.s r. to Rheumatoid Arthritis and its management with *Yavaani churna*- A Case Study

*Dr. Deshmukh Prashant Nareshrao **Dr.Rajesh Manglesh ***Dr.Dalip Sharma

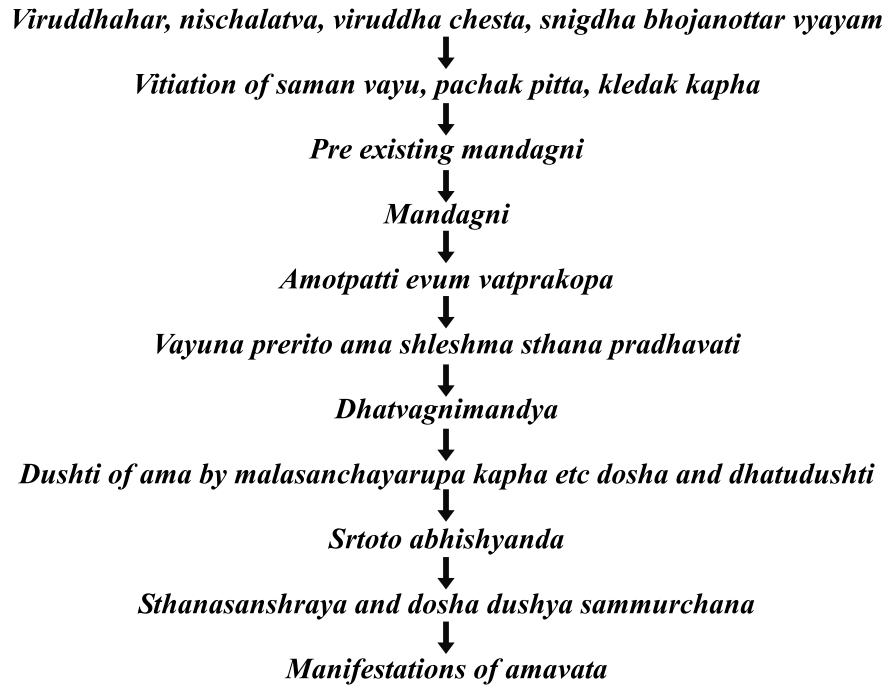
Introduction:-

Amavata is one of the chronic diseases mainly affecting the joints with some other constitutional symptoms. Due to absence of some suitable remedy, it is imposing great challenge before the medical world. It runs a very long course and not only makes the patients to cripple but may also restrict the patients to the bed. *Ama* & *Vata* are the two main pathognomic factors held responsible for causation of *Amavata*. Excessive consumption of *Nidana* of *Amavata* in preexisting stage of *Mandagni* leads to formation of *Ama* and simultaneous vitiation of *Tridosha*, especially the *Vata dosha*. The *samprapti* originates initially from the *Annavaha srotasa* and in due course spreads to the other *srotasa*, mainly *Rasavaha*, *Asthivaha* and *Majjavaha srotasa*. The *dusyas* mainly involved in this disease are *Rasa*, *Mansa*, *Asthi* and *Majja*. *Sandhi* is

the main site of *abhivyakti of lakshana*. *Ama*, under influence of vitiated *Vata*, comes in *sleshmasthan* mainly in *sandhis* and gets lodged there. *Sandhishoola*, *Sandhishotha*, *Stabdghata* and *Sparshasehatva* are the cardinal features of *Amavata*. As stated earlier, the disease runs a chronic course of *Jadya*, *Sankocha*, *Angavaikalya* *Manskshaya* etc.

Modern Review:- RA is a chronic, multisystem disease of unknown etiology. Although there are variety of systemic manifestations, the characteristic features of RA are persistent inflammatory synovitis usually involving peripheral joints in symmetric distribution. The potential of the synovial inflammation to cause cartilage destruction is the hallmark of the disease.

Samprapti of Amavata



Drug Review:- *Yavaani* (*Trachyspermum ammi*) Family- Umbelliferae. Guna- laghu tikshna, Rasa- katu tikata,

Vipaka- katu, Virya- ushna. Tikta and Katu rasa present in *Yavaani* possess the antagonistic properties to that of *Ama*

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and Kapha which are the chief causative factors. Because of their agnivriddhikar properties they increase digestive power which also digests Amarasa and reduces the excessive production of Kapha and also removes the obstruction of the srotasas. Because of Tikсна Guna and Usna virya it also alleviates vitiated vata. Tikсна and Ushna properties of Yavaani do not allow the Ama to linger at the site of pathogenesis and to create srotorodha. But it reduces srotorodha and pain. It has also the antagonistic action of sita and ruksa guna of vata. It also has vednasthapan shoolaprashaman properties

Thus Yavaani controls Ama and vata together and minimize the process of pathogenesis.

Case Study:- A male patient of age 58 years having morning stiffness, pain and swelling over phalanges, wrist & knee joint since 2-3 months came to the OPD. He was also having *aruchi*, *gaurav*, *agnimandya* and was diagnosed as *Amavata*. It was early stage of the disease. Patient was advised for blood investigations which revealed RA factor reactive and ESR 90 mm fall after 1st hr.

Patient was advised nidhan parivarjana chikitsa alongwith Yavaani churna 1gm BD with Koshna Jala and follow up was taken after every 15 days for 2 months and following effects were observed.

Symptoms	Before treatment	During treatment			After treatment
		15 days	1 month	45 days	
Angamarda	Severe	Moderate	Moderate	Mild	Mild
Trishna	Moderate	Mild	Mild	Mild	Mild
Gaurav	Severe	Moderate	Moderate	Mild	Absent
Jwara	Moderate	Mild	Mild	Absent	Absent
Agnidaurbalya	Severe	Moderate	Mild	Mild	Absent
Bahumutrata	Moderate	Mild	Mild	Mild	Mild
Koshta baddhata	Moderate	Mild	Mild	Absent	Absent
Rheumatoid factor	Present	Present	Present	Present	Present
ESR fall after 1 hr	90mm	80 mm	50mm	30mm	20mm

Result:- After completion of trial patient was found to be not treated completely but he was relieved from severe pain, swelling, agnimandya and fever. ESR decreased but serum positivity persisted for RA FACTOR .

Conclusion:- It can be concluded that indicated hypo-functioning of *Agni* i.e. *Mandagni* is largely responsible for the formation of *Ama*, which is the chief

pathogenic factor of the disease. Although trial drug provided statistically significant results in various clinical features of the disease. Yet as it is single case report large clinical trials can be carried out for better, analysis of the effect of drug. Yavaani having *Deepana*, *Pachana*, *Kapha Shamaka* and *Vata Prashmna* properties appear to play an important role in the treatment of *Amavata*.

Healing Through Massage

***Prof. Naresh Sharma**

****Dr. Rekha Sharma**

Massage is not rubbing or pressing of the body or application of oil alone. Many people think if they rub the body with or without oil, massage is done. Ordinarily, everybody rubs his body or somebody else's body. But this rubbing and pressing is not enough, for full benefit from massage, one needs to understand the systematic way of doing massage. The massager should be of calm and peaceful disposition. The act of massaging is an act of giving and, therefore calls for a selfless attitude. Select a comfortable place with enough light and ventilation. If possible, sunlight should seep into the room. Massage should start from soles of the feet and moves toward heart, this enables the veins, which carry impure blood to the heart, to function better. In cases of cold massage, the correct direction is from the head to the toes. Cold massage stimulates the arteries. Auto massage (self-massage), this should never be done in standing position. Sit and start massaging from the soles of the feet towards the head

Massage Movements :- It directly acts on the three systems of the body:- Circulatory, Nervous & Lymphatic system.

The lymphatic system is one which is directly involved in massage. The lymph flows through the ducts, nodes and passage. It does not flow through capillaries.

The lymph and blood flows side by side. Also all our muscles are like fishes floating in the lymphatic fluid. The lymph node assists in the circulation of the blood by draining excess liquid from blood stream. They also ease the work load of heart. Since the lymph nodes are located underneath all the joints of the body. Applying the circular movement, one can stimulate lymph flow and generate heat through friction and thus clean and vitalizes the body. Massage in all ways increase body temperature and excites the circulation of blood in the body. In the same way, it also works with the fine network of nerves lying underneath the skin and excites the nervous system. This also serves as a cleanser and provides the nerves with nourishment.

According to Ayurveda, oleation therapy alleviates vayu, softens the body and disintegrates the adhered material in the channels of circulation. As the dirt adhered to a piece of dirty clothes gets detached by the application

of heat or hot steam similarly the malas become detached by the application of oil, massage and fomentation therapy (Charaka-Samhita).

स्नेहोऽनिलं हन्ति मृदु करोति देहं मलानां विनिहन्ति सङ्गम ॥

Guidelines For Massage

1. The most suitable time is early in the morning for massage between 5 AM to 9 AM
2. Duration of massage will differ from person to person. New born baby should be given massage for 15 minutes daily, children of 3 year 15 to 20 minutes, young and old people up to 45 minutes. Abdominal massage should be done for 5 min. only if required & done on empty stomach.
3. Upon completion of the massage both the receiver & the giver should relax in the corpse posture.
4. For pregnant woman massage should be given very carefully for as long a woman desires.
5. After delivery also massage is must. Upto forty days after the 4th day of delivery, massage of the lady and the newcomer is necessary and it is done as regularly as infant and mother are given food and nourishment. Also, massage being a cleansing device, it is necessary for the mother and the child because they cannot do any exercise. There is much physical and mental strain on the body of the lady during the process of delivery. There is pain before and after delivery. massage helps the system reorganize itself and relaxes the lady.
6. Massage for newborn babies is a tradition and an unavoidable phenomenon. It should be started six days after birth.
7. Foot massage is highly praised in ayurveda. There is nothing more healing and effective than foot massage before sleeping. Lord Vishnu is always taking foot massage from his wife Lakshmi. The foot massages really saves man from diseases and troubles. As snakes don't approach eagles, diseases don't go near one who massages feet before sleeping. It is said that the soles of the feet contain end parts of all the organs, also feet discharge energy, which give spiritual power to man.
8. Massage for beauty start from the base of the spine as the spine is the most important part of the body. Sesame oil 1 pint, Sandalwood oil 15 gm, Wheat germ oil 150 gm, almond oil 150 gm should be

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shaken well and stored in the sun. This mixture should be used for massaging the spine, hands, neck and shoulders. This beauty massage should be done for 40 days.

Some Therapeutic aspects of massage

1. For general weakness

Massage with olive oil, almond oil, fish oil.

2. For Sprains or dislocation of bones

Massage with Mustard oil, Vishgarbh tail or Panchguna Tail

3. Arthritis

Pain in arthritis is caused by poor circulation in the joints. For a better degree of circulation in that area the affected part should be given fomentation with warm water for about three minutes. The one minute application of cold water should be done, then the fomentation with hot water should be repeated. After this, massage with a mixture of olive oil (1oz), mustard oil (1 oz), wintergreen oil (10 drops), eucalyptus oil (10 drops) and mint oil (10 drops). Shake well and warm the mixture before giving the massage. This will increase circulation.

4. For Rheumatism massage with Mahanarayana oil

5. For Neurasthenia

Massage with almond oil is very effective.

6. For high blood pressure

Gentle massage with light pressure is prescribed. Jasmine oil or rose oil can be used.

7. For sciatica

Oil made by charring fenugreek seeds in mustard oil help.

8. For Paralysis

Massage enhances circulation.

9. For polio

Fish oil should be used for massage.

10. For insomnia

Massage of the head with pumpkin seed oil is very effective.

General Benefits

- Soothes and enables the nerves & pulse to function properly.
- Increases circulation of the blood.
- Strengthens the vital organs.
- Improves skin.
- Regulates digestive system.
- Cures diseases such as polio and paralysis.
- Helps athletes, gymnasts and soldiers.
- Strengthens bones.
- Relieves ailments in old age.
- Reduces swelling and thickening of tissues.
- Facilitates the assimilation of nutrients in food.
- Reduces obesity

A Great Revolution coming up : Artificial Kidney

**Dr. Madan Lal*

Kidneys are the very important organs of the human body. A person is said to be of great strength if his kidneys are working in very good condition. These are not simply the excretory organs but have a great function of filtration, re-absorption and steroidal and hormonal secretions through the supra renal glands. Traditionally the glomerular, tubular, interstitial diseases and the vascular diseases of the kidney ultimately lead to acute renal failures, ischemia, anemia, nephro toxic food and drugs, metabolic acidosis. Hyperkalaemia, Hyper urecaemia, cardio vascular, digestive, respiratory disorders, problems of skeletal tissues, cysts, tumours, infections, auto immune diseases, prolonged illnesses, diabetes and malignancies are the major causes and contributory factors responsible for renal failure.

In case of renal failure nephrologists were left with no alternative other than dialysis or the kidney transplants. But both of these methods are much complicated and not within the approach of common man being much costly.

In India nearly a fifth of 5.5 lakh patients suffer from “End Stage Renal Disease” every year. But, advances in nano technology, regenerative medicine and in stem cell biology are slowly opening up new treatment possibilities. There has been much progress globally to battle the disease. As a result, conventional dialysis which have been around for seven or eight decades continued to be the gold standard for treating ESRD will soon be replaced by the new technologies. One of the major new tech possibilities is the Implantable Renal Assist Device (IRAD). In other words we can say it is the Implantable Artificial kidney. It is a device on which a multi institution team led by Shivo Roy, Bangladesh born scientist, an associate professor at the university of California is doing the research. This new device will be as small as coffee cup. ESRD (End Stage Renal Disease) require life supporting treatments such as dialysis or kidney transplantation. Kidneys filter and remove waste from the body and produce hormones required for calcium absorption and RBC production. They regulate blood pressure, so impairment can be life threatening.

The new device i.e. IRAD filters toxins from the blood and also carries out the biological functions of a healthy kidney. Dr. Roy claimed that this device carry out approximately upto 75% functions of healthy kidney where as conventional dialysis takes care only 15 to 20 % of normal kidney. In dialysis blood is pumped back into

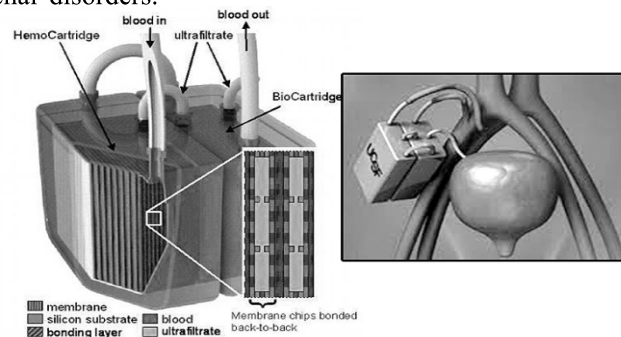
patients body and an ESRD patient needs three dialysis in a week and only 1/3rd survive beyond five years. There are almost 2 million ESRD patients world wide and enough kidneys are not available for them, secondly in many of the cases the body of the patient rejects the new kidney.

The IRAD is expected to work like a real kidney. Microscopic filters with the tiniest of sieves which trap the toxins while letting the blood through a bioreactor will be there in the device that will reabsorb water and salts and blood pressure will also be maintained. The device is fully capable of providing round the clock dialysis and the patient will not have to undergo trauma of dialysing big machines and needing extra blood transfusion every time. So it will vastly improve life style of patients and they will be free to do their daily routine work without hindrance like walking, sleeping and other routine jobs.

Now even the scientists are working on growing new kidney through regenerative medicine. If this happens, the chronic kidney disorders like the CRF may be totally wiped out. The clinical trials on the artificial kidney are planned to be held in 2017.

In India most of the people are suffering from severe chronic kidney disorders and can not afford dialysis as it costs Rs. 15,000 - 30,000 a month. Similar is the case of kidney transplantation as donors are rare. There should be a compatible matching between the donor and recipient. India undergoes 5,000 -6,000 kidney transplantation in a year, which is less than 5% of total cases that need transplantation and similarly less than 10% cases of CKD undergo for dialysis.

So if the efforts of Dr. Shuvo Roy and his team come to a success it will be a great revolution in the history of medical science in acute and chronic renal disorders management and will be of great importance especially for India where almost 10% of the population is suffering from renal disorders.



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Refine Your Food with New Mantra

“*Jeerne Hitam Mitham*”

***Dr. Prabodh Yerawar**

****Prof. Naresh Sharma**

Now-a-days the burning problem in front of the society is life style disorders. The aetiology behind these disorders is hidden inside the ancient texts of *Ayurveda*. Changing lifestyle, changing dietary habits, mental stress are some of the major causes of lifestyle disorders. According to the ancient texts, all diseases have their roots in disturbed *Agni* (digestive fire). It is the most frequently asked question that what is the exact time to take diet. It is important to think that how can there be a common time for every person to take his/her diet when each and every individual has different body, different digestive power, different constitution. Almost every *aushadha sevana kala* (time to take medicine) described in *Ayurveda* are related to diet. So it is important to know what is the exact time to take diet. Along with the modernization we are disturbing our dietary habits. It takes nearly 12 hrs for digestion of food therefore *Ayurveda* favours taking diet twice daily only. “*Jeerne Hitam Mitham*” is the exact time and proper way to take the meal and get rid of lifestyle disorders. Now let's understand each term in detail.

Jeerne :

Jeerne means eating after the digestion of food consumed earlier. This suggest that any food, in spite of the fact that it is good for health, is good only if it is taken after the digestion of food consumed earlier. How to know whether the food is digested or not? Our body and mind should be prepared well, to receive and digest the food we eat. When the natural urges like urination and defecation are relieved, when clarity is felt in the chest, when belching is very clear (without any smell), when appetite is felt, when bowels are moving freely, when body feels light, that is the exact time to eat food.

Hitam :

Hitam means consuming ideal diet. If some foods which oppose each other either in their activity or ingredients are consumed at the same time, they exhibit symptoms similar to poisoning. Common incompatible combinations include adding fruits and milk, biryanis, salt and curd, etc. Incompatible food cannot show adverse effect in persons

who regularly exercise. If a person is slowly habituated to or addicted to harmful drug or diet, that can be withdrawn or tapered in a gradual way of stepping down. Initially reduce 25% and maintain it for some time, further reducing 25% of it and so on till the habit is 100% reverted.

Mitham :

Mitham means consuming food in proper quantity. This limit of quantity is dependent upon the *Agni* (digestive capacity) of that particular person. Again, the quantity depends upon the nature of food whether it is *guru* (digested with difficulty) or *laghu* (digested with ease). “*Guru*” food may be consumed only upto half the way of the point of satisfaction. “*Laghu*” food may be taken in upto $\frac{3}{4}$ th to the point of satiety. One can skip a diet if his digestion is not proper or is not hungry.

So, now get ready to refine your food by applying this mantra “*Jeerne Hitam Mitham*” while eating or drinking anything and refine your life in a good way.

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Chromatographic Study between Katuki Rhizomes and Katuki roots.

* Dr. Lalit Nagar **Dr. Ringzin Lamo ***Dr. Sudipt Rath ****Dr. Naresh Khemani

Abstract

Introduction- *Katuki*, *Picrorhiza kurroa* Royle ex Benth, is considered to be a valuable bitter tonic and a propitious remedy in bilious dyspepsia accompanied with fever. The importance of this drug has created a demand in the market but due to excessive deforestation and extreme weather conditions Himalaya is not able to meet the demand there by leading to unethical and dangerous practice of adulteration. The official part of use of *Katuki* is rhizome, the rhizomes are commonly adulterated with other parts such as the roots, stems, dried leaves of the same plant.

Aim of Study- To check the quantitatively and qualitatively difference between the rhizomes and roots of the *Katuki*.

Materials and Methods- Samples of *Katuki* were collected from their natural habitat and from major raw drug markets of India. Analytic tests like extractive values, total glycoside content and TLC were done in dravyaguna laboratory of National Institute of Ayurveda, Jaipur. HPLC study was done in *Amol Pharmaceuticals Private Limited Sitapura, Jaipur*.

Results- Market samples were found Adulterated (7 to 47%) much above the standard value of 2% as per API. Significant differences were found in the extractive values and total glycoside content between rhizomes and roots of *Katuki*. Thin Layer Chromatography of genuine *katuki* and its roots revealed difference in the number of spots and also difference in Rf values. The rhizomes of genuine sample of *Katuki* has more than 5 times amount of Picroside II in comparison with the roots.

Conclusion- From the above results it clearly shows that the roots are the adulterant and it will surely reduce the therapeutic potential of *Katuki*.

Keywords *Katuki*, HPLC, Picroside, Adulteration.

Introduction- *Katuki* has been used in the indigenous system of medicine since a long time. The authentic source of the drug is rhizome of *Picrorhiza kurroa* Royle ex Benth belongs to family Scrophulariaceae (API Part I Vol. II Page no. 91). The plant is native of North-West Himalayas from Kashmir to Sikkim. It grows on bare hill sides as well as on the edges of rocks. Its rhizome is used in many Ayurvedic medicines. *Katuki* is considered to be a valuable bitter tonic and a propitious remedy in bilious dyspepsia accompanied with fever. It is antipyretic, anthelmintic, laxative and is useful in asthma, blood troubles, burning sensation, piles, inflammations, ringworm. (A Text book of Pharmacognosy by C.K. Kokate, A.P. Purohit, S.B. Gokhale, Nirali Prakashan, 24th edition, page no. 248). The importance of this drug has created a demand in the market but due to excessive deforestation and extreme weather conditions Himalaya is

not able to meet the demand there by leading to unethical and dangerous practice of adulteration which seems to be the prime obstacle in excellence of the Ayurveda in this present Era. The rhizomes are commonly adulterated with other parts such as the roots, stems, dried leaves of the same plant.

Materials and Methods- To check the degree of adulteration market study was done along with the collection of genuine samples from the native habitat. After collection of samples, it had been observed that, the samples taken from all the major Ayurvedic drugs whole sale markets were having all diagnostic characters & same appearance as that of genuine sample of rhizome of *Picrorhiza kurroa*. Only difference was the quality of the samples, difference in the size of rhizomes and amount of mixing of adulterant in the form of roots and other materials from the same plant.

Table 1: Foreign matter of *Katuki* and its market samples

S.no	Sample	Total weight	Foreign matter	Percentage
01	Genuine	350 gms	4 gms	01.142%
02	Kullu	502 gms	92 gms	18.326%
03	Amritsar	501 gms	45.701 gms	09.140%
04	Jaipur	500 gms	38.808 gms	07.761%
05	Mumbai	500 gms	100 gms	20.000 %
06	Kolkata	510 gms	240 gms	47.058%
07	Kochin	505 gms	63.420 gms	12.558%

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Standard- Not more than 2 % (API Part I Vol. II Page no. 92)

Percentages of Foreign matter from all the market samples were found much above the standard i.e. 2 %. On examination of foreign matter, lateral roots

of Katuki were found in large quantity.

Qualitatively there was no difference in the presence of secondary metabolites. But differences in the extractive values were found.

Table 2: Differences in the Quantitative values between Rhizomes and Roots of *Katuki* of Amritsar market sample.

S.no	Values	Katuki rhizomes	Katuki roots
01	Water extractive %	54.344 %	25 %
02	Alcoholic Extractive %	37.189 %	23 %
03	Total glycoside content	29.647 %	10.081 %

Method of isolation of glycosides¹:

- Powdered drug was extracted with alcohol in soxhlet extractor.
- Alcoholic extract was then treated with lead acetate solution to precipitate tannins, proteins, coloring matter and other non-glycosidal part.
- The precipitate formed was filtered and to the filtrate H₂S gas was passed to precipitate excess lead as lead sulphide and removed by filtration.
- Filtrate was evaporated to dryness on water bath and dried residue was collected and weighed to get total glycoside content.

Thin Layer Chromatography of *Katuki* Rhizomes and *Katuki* Roots

The official useful part of *Katuki* is its rhizomes and in

the study roots were found adulterated heavily in rhizomes. Roots are inferior to rhizomes and reduce the quality and potential medicinal value of *Katuki*, so comparative TLC between rhizomes and roots were done.

Sample Preparations

Total Glycoside content of *Katuki* rhizomes and *Katuki* roots (extraction as per above method).

TLC chamber

Mobile Phase : Chloroform: Methanol (95:5)

Stationary Phase : Thin layer chromatographic plates (Silica gel, 60 F254)
Merck, Germany

Distance Travelled: 7.5 cm.

Table 3: Rf values of *Katuki* rhizomes and *Katuki* roots.

Samples	Iodine Vapour		Vanillin sulphuric acid reagent	
Rhizome	09	Rf. 0.05, 0.07, 0.16, 0.21, 0.26, 0.47, 0.70, 0.88, 0.96.	10	Rf. 0.05, 0.07, 0.01, 0.16, 0.21, 0.26, 0.47, 0.70, 0.88, 0.96.
Roots	03	0.24, 0.34, 0.61	04	0.24, 0.34, 0.46, 0.58.

High Performance Liquid Chromatography (HPLC)

HPLC study was done in Amol Pharmaceuticals Private Limited Sitapura, Jaipur. Crude samples were given to the Amol pharmaceuticals in a air tight poly bag.

Katuki

Samples chosen for HPLC study was the root part of *Katuki* (K 0) which found admixture in large amounts with the rhizomes, genuine samples of *Katuki* (K 1). Picroside II % in both the samples was calculated with the help of standard Picroside II.

Process followed by Amol Pharmaceuticals:

Preparation of Mobile phase:

Mix properly 150 ml of acetonitril, 100 ml methanol and 750 ml of aqueous phosphoric acid solution pH 3, filter through 0.45 m membrane filter and degas.

Preparation of Standard solution:

Weigh accurately working standard equivalent to 5 mg of picroside II in a 100 ml volumetric flask. Add 25 ml of mobile phase. Sonicate the solution to dissolve the content. Make up volume with mobile phase. Mix properly and filter.

Preparation of sample solution:

Weigh accurately about 100 mg sample in a 100 ml volumetric flask. Add 25 ml of mobile phase, sonicate the solution to dissolve the content. Make up volume with mobile phase. Mix properly and filter.

System suitability: Inject 5 replicate of reference standard, calculate the % RSD, it should not be more than 2%.

Procedure:

Inject equal volume (20 microltrs.) of standard and sample preparation. Record the chromatograms,

calculate the average area and finally calculate the percentage of picroside II.

Instrument setup conditions:

Instrument: High Performance Liquid Chromatography equipped with UV- Visible Detector.

Column : Hypersil Octadecyl Silane 5 μ m
(4.6 mm x 250 mm)

Wavelength : 220 nm

Flow rate : 1.5 ml per minute

Run Time : 15 ml

Injection Volume : 20 microltrs.

Table 4: Percentage of Picroside II [Chromatogram No. 1-4]

Peak	Name of sample	Ret. Time	Area	Picroside II %
1	Root K 0	6.859	147927	0.54 % w/w
1	Genuine K 1	6.840	804434	2.90 % w/w

Results and Conclusion

The official part of use of *Katuki* is rhizome of *Picrorhiza kurroa* Royle ex Benth. belongs to family Scrophulariaceae (API Part I Vol. II Page no. 91). During the market study it was found adulterated (7 to 47% table no 1), major part of adulteration was its lateral roots. Significant differences were found in the extractive values and total glycoside content between rhizomes and roots of *Katuki* (Table no 2). Thin Layer Chromatography of genuine *Katuki* and its roots revealed difference in the number of spots and also difference in Rf values (Table no 3). The rhizomes of genuine sample

of *Katuki* has more than 5 times amount of Picroside II in comparison with the roots (Table no 4). From the above results it clearly shows that the roots are the adulterant and it will surely reduce the therapeutic potential of *Katuki*. So the sample of *Katuki* should be free from these lateral roots.

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Yoga For Low Back Ache

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Spinal disorders

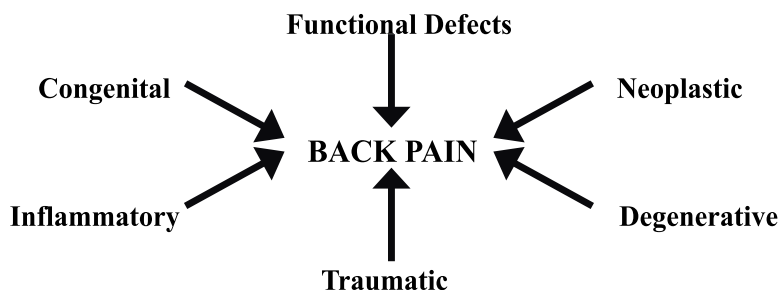
The diseases of spine top the list of the common health problems created by changing lifestyles. The spectrum of diseases ranging from the idiopathic back pain to the malignant tumors of the bone belong to this group. The diseases of the spine are grouped into 2

- 1) Structural disorders
- 2) Functional disorders especially due to mental stress or variation in lifestyles

The precise knowledge of the pathological transformations which occurs in the spine can be obtained today by imaging techniques, but the approach of yoga is different from this. Yoga views this disease from the angle of panchakosha theory.

Annamayakosha : The structural fabric of human body is known as annamayakosha. Any structural deformity in the body can be included under pathology of annamayakosha.

1. **Congenital** : Spina Bifida, Spondylolisthesis, Hemivertebra etc.
2. **Traumatic** : Lumbosacral Sprain, Injuries to I V Joints, Compression Fracture, Vertebral Process Fracture, Ruptured Discs/Disc prolapse.
3. **Inflammatory** : Osteomyelitis, Tuberculosis, R A , Ankylosing Spondylitis, Myositis, Fibrositis
4. **Degenerative** : Spondylosis, Osteoporosis, Degenerative Disc Diseases



Management in clinical yoga

The diseases that manifest in annamayakosha must be dealt with judicious combination of medication, panchakarma, surgery, radiation and yogasana. When disease get manifested in annamayakosha, along with specific treatment for respective problems, the stability and mobility of the muscles must also be attained. The mobility and stability are opposite qualities. When there is injury to muscles, rest is the best advised treatment, but again excessive rest would lead to degeneration of muscles. Also muscles may get shortened and stretching capacity would decrease. Thus both mobility and stability must be given due importance throughout the treatment for maintaining strength of muscles.

Asana

Yogasana are those form of exercises which provide stability, mobility as well as adequate rest. Yogasana can stimulate and provide rest to the individual as well as to

the group of muscles. Control and coordination of neuromuscular system also increases through various asana.

For the different condition of spinal diseases, suitable asana should be selected.

1)Acute inflammatory stage

In the initial stages the disease affected area are inflamed with sever pain. This condition is known as acute inflammatory stage. At the first hand, to alleviate inflammation, rest is important. Complete rest that can be provided for almost 2 days reduces the severity of the disease. Here the muscles must be relaxed through shavasana. In coming days slight movements should be imparted to the afflicted part without increasing the pain. Simultaneously, internal medicines to pacify inflammation must also be used.

2)Acute stage

When inflammation is alleviated through proper treatment, diseases get transformed to acute stage. It is a condition

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with duration of more than 2 weeks, the patient not able to stand even for 15 minutes and not able to walk greater than 300 meters. In this condition mild forms of yogasana should be performed. The yogasana providing least strain to the spine must be selected. Sitting and leaning forward is the posture that provides maximum strain to the spine where lying supine is the most relaxing posture. Hence, such yogasana must be judiciously selected.

While selecting yogasana posture bias is another aspects that requires due consideration. Some specific postures would relieve the patient from pain. This is known as posture bias. There are 3 types of posture bias.

- **Non- weight bearing bias-** In general, standing postures would increase backache in the patients, but in non-weight bearing bias pain will not increase.
- **Flexion bias-** The bias where the pain decreases on bending forward is the flexion bias. This condition is seen in cases where intervertebral disc protrudes anteriorly.
- **Extension bias-** This is the condition when there is comfort on backward bending and difficulty on forward bending. extension bias is usually seen in case where there is backward protrusion of intervertebral discs.

Yogasana to be practiced during acute stage

To deal with diseases of the spine in the acute stage, mild yogasana must be advocated considering the severity of pain.

1. **Supta udarakarshanasana** (Folded leg lumbar stretch)
This asana is performed by twisting the vertebral column gently and tightening the muscles. This should be repeated five times.
2. **Supta udakarshanasana** (Crossed leg lumbar stretch)
In this asana by crossing the legs, the hamstring, gluteus, and Sartorius muscles are stretched more. The asana is repeated for five times.
3. **Uttanapadasana**
This asana provides exercise to muscles of rectus abdominis, psoas, and iliacus. The legs are raised alternatively. The asana is repeated for five times.
4. **Parshva padottanasana**
This asana stretches the adductor muscles. Repeat the asana for five times on both sides.
5. **Ardha shalabhasana**
In this asana the muscles of the front of the thigh and abdomen get stretched. Repeat for five times.
6. **Bhujangasana**
Along with the attainment of proper curvature of vertebral column, rectus abdominis, pectoralis and sternocleidomastoid get stretched. Repeat for five times.

These exercises strengthen the muscles that support the vertebral column. Then, to provide relaxation to these muscles, shavasana must be practiced. By loosening the joints each stretched muscle is visualized and then imagine that each of them is getting relaxed.

3) Sub Acute Stage

This is the condition in which the patient is unable to perform some specific functions in the daily routine. Here, the inflammation gets subsided completely, but it is the compression on the nerves that manifests as pain.

Asana to be practiced during subacute stage

All the basic asana except those causing discomfort can be practiced in this stage.

1. Setubandhasana

In this asana, the pressure on the vertebral segment can be reduced. The final stage can be lengthened up to which there is comfort.

2. Ardha pawanmuktasana

In this asana, a good stretch is obtained in the erector spinae muscles. Repeat on both side.

3. Ardha matsyasana

In this asana, the neck muscles are stretched properly. The vertebral segment are bent backwards. Continue in the final position with ease for sometime.

4. Vakrasana

In this asana ideal twist is obtained for vertebral column. Oblique muscles and transverse abdominis are stretched properly. Repeat this on opposite side.

5. Shashankasana

Exhale while bending forward and inhale while bending backward. Repeat this for five times.

6. Ardhausturasana

The muscles of the abdomen, chest, and neck are stretched gently. Stretch backwards only up to the level of comfort.

7. Marjarasana

Inhale while raising the head and exhale while dropping it down. This asana improves the flexibility of the spine. Repeat this five times. At the end shavasana should be practiced.

4) Chronic Stage

In chronic stage even after primary subsidence of disease, the activities that require special skills are restricted. Asana should be practiced just like that of a healthy person.

● Pranamaya Kosha

Excessive exertion of the human body, work in wrong posture and excessive rest can lead to an imbalance in the flow and utilization of prana. This would lead to excess contraction of paravertebral musculature and serious disorders of the spine.

Management:- The diseases of pranamaya kosha can be treated by avoiding the etiology and through yoga techniques giving due importance to pranayama

● **Manomayakosha**

The mental tribulation often affect the structure and function of the body. Such stress stimulates the limbic system which leads to an imbalance in the function of the autonomic nervous system. Moreover it leads to the contraction of the paravertebral musculature. It derails the immunity and would promote autoimmune reaction leading to origin of diseases like arthritis. Degeneration of bone could also result from these causes.

Management:- The diseases of the manomaya-kosha can be trackled by reducing mental stress. In the process, dhyana and relaxation techniques should be given due importance.

● **Vijnanamaya Kosha**

Indiscriminative cats for satisfying over ambition, makes man victim of various diseases. All wrong lifestyle also invite the diseases of the spine.

Management:- Restructuring the diseases causing lifestyle must be the protocol in the diseases of vijnanamaya kosha.

● **Anandamaya Kosha**

The personality of the individuals has definitely an important role to play with respect to manifestation of diseases.

Management:- To deal with anandamaya kosha effort must be directed towards gaining the knowledge of real self & performing karmayoga.

Increasing Numbers of Psycho-Neurological Disorders in Current Situations (Mano Evam Nadi Tantrika Roga)

**Ritu Katha*

***Dr. Raghuvir Singh*

Psychosomatic disorders are increasing in number and leading to large number of health problems and complications. Psychological disorders are increasing because of many factors but the most important is "Urbanization" and so called "Modern Lifestyle of today". Advancing age it has been hypothesized to be a risk for psychological disorders. There are several neuropsychiatric medical conditions that are frequently seen in old aged patients like Depression, Dementia, Parkinson's disease, Schizophrenia mood elevations, Hypertension, Anxiety & Insomnia.

With the advancing age incidence of depression is increased in persons of all age groups, but specifically aged persons are more affected with depressive conditions. Acetyl choline, dopamine and nor-epinephrine decrease in the CNS with the advancing age and decrease in number of neuro-receptors contribute to the vulnerability towards depression and other psychological disorders. According to ayurveda Causes of Maansik Vikaar are Rajaah and Tamaah Doshas which are believed to cause disturbances in Maansik Dosha and disturbed Mansika Doshas leads to various symptoms like Bhaya, Santraas, Manah Shobh, Vyamoh etc. With advancing age people are mostly affected with depression. Depression contributes to significant psychological and physical distress, physical disability and higher mortality. Depression present most often as anxiety in older people. According to ayurveda the saamanya cause of Psychological disorder is due to Mithya Aahar and Mithya Vihaar including disrespect to elders, bhaya, anxiety, sudden happiness etc.

Samprapti :- Mithya aahar and vihaar → Dosha Praakopa → Hridya Dushti → Dosha Gamana in Manovah Sarotas → Manovibrahma → Psychosis. The presence of co-morbid anxiety disorder is associated with poor social functioning and a higher level of somatic symptoms and even suicidal tendencies. Psychiatric disorders may present with primary psychiatric complaints or with physical symptoms and physical and psychiatric illness often co-exists. If all these symptoms are not well treated at proper time leads to serious psychiatric illness like delusions of influence in which patient says that their mind or body is being controlled by outside forces. Thoughts are forced either into or out of their head. Another form illusions occur when the object is real but misperceived. Illusions are usually related to unusual

features of the perceptual environment of the object coupled with state of high emotions in the perceiver. Hallucinations occur in the absence of perceived object. Commonest Hallucinations are auditory and visual but as with normal perceptions. They may be due to organic disease of the nervous system or to extreme environmental disturbances as in sensory deprivation. Parkinson's disease is a hereditary degenerative disorder. It is most common Extra-pyramidal disease affecting the elderly. Tremor is the common presenting symptom. Senile psychosis is also most common in elderly people leading to memory loss, selfishness, misbehavior with others and depression. According to ayurveda Manas dosha's praakopak causes are Pragyapraadha, asaatamya-indriya artha samyog and prinaam. Symptoms includes sleep disturbances (Nidra Naasha) nightmares with depression, Aatyaadhik Nidra, reversed sleep patterns, loss of interest in life, lethargy, poor concentration, weight and appetite disturbances, continuing suicidal thoughts, retardation of speech, paradoxical aggetation, palpitations, Tremors, feeling of impending doom and Many more. Its investigations includes :- Tests of cognitive state, structured questionnaires to access aspects of personality and mood. Laboratory tests and Neuroimaging are used in some cases.

Treatment is according to Prakupit Dosha so that it works on particular dosha leading to Dosh shamana. Conventional medical therapy to treat psychosomatic diseases includes psycho- stimulants, anti-depressants and electro-convulsive therapy. Ayurveda has various therapeutic modalities to treat psychological and neurological disorders to make them adjustable. Very first step is nidaan privarjana i.e. to avoid the situations that cause any sort of disturbance in life style it includes changing the situation according to mood of patient in which he/she finds comfort. Concept of Satva-Vajaya chitksa (psychological therapy) is unique which means to create positivity in patient's mind and soul so that they think positive and behave accordingly. By following sadvritta one can prevent occurrence of psychiatric illness. It includes Maansik Sadvritta, Kaayik Sadvritta and Vaachik Sadvritta. Panchkarma therapy including Vamana, Virechan and Vasti etc. cleans the channels of body and these should be applied according to preponderance of dosha involved so that nutrition can be provided to the body. Nasyakarma is the root of choice in diseases of head

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and supraclavicular region. Shirovasti, Takradhara, Siropichu are also useful in Tranquilizing the agitated patients. Medhya rasayanas have quality of enhancing memory, intelligence and strength of body, mind and sense organs such as juice of mandhukparni, guduchi, Powder of Yashtimadhu and paste of Sankhpushpi. Brahmi rasayana and Ashwagandha grita.

Formulations used are:-

Single Drugs:-

Brahmi	Bala
Badaam	Gogrita
Godughdha	

Compound formulations :-

Sarasvata Churna	Ashwagandha Churna
Brahmi Vati	Sarpagandha Vati
Ashwagandha Arishtam	Sarasvata Arishtam
Jyotishmati Taila	Brahmi Taila
Maha Panchgavya Ghrita	Kalyanak Ghrita
Manas Mitrakam Vatika	Smritisagar Ras
Yogendra Ras	Prachandbhairav Ras

To Contributors :-

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- 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.
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A New Approach Towards Diabetes Mellitus (Madhumeha)

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Ancient science of life-Ayurveda deals with physical, mental, and spiritual well being of an individual. The desire to live which is one of the basic instincts has been common to all living creatures. Man desires not only to live but to live a long, happy and disease free life but the continuous changes in life style with technological advancement, urbanization, economic growth, increasing competition in every field of life etc. has lead to stressful society. Various stressors cause disturbance in mansikabhava which leads to disturbed homeostasis of body and mind by vitiating manasika & sharirika dosha & agni. This causes prevalence of various metabolic diseases such as madhumeha. Madhumeha is a disease in which patient passes excessive & frequent urine "Prabhoot aavil mutrata". Causes are classified into santarpana hetu & aptarpana hetu. Santarpana hetu includes excessive use of milk products, kaphavardhaka ahara vihara, excessive alcohol consumption, excessive day time sleep, lack of exercise, luxurious life style. On the other hand aptarpana hetu includes intake of katu, tiktarasa in excess, improper food intake, stress, anxiety, excessive panchkarma procedure, excessive exercise. Where as in modern it is marked by high level of blood glucose resulting from defects in insulin production, insulin action or both. Glucose intolerance or insulin resistance increases with age. It's samprapti indicates the kapha vardhaka aharavihara leads to medoviridhi which leads to obesity & agnimandya that leads to oja dushti, oja shaya which leads to madhumeha. Madhumeha is kapha pradhan tridosha prakopa and dushya include ras, jal, mamsa, kleda, shukra, rakta, vasa, majja, lasika, meda dhathu. In Ayurveda, Prameha is of 20 types according to dosha ,i.e. kapha-10, pittaj-6, vataj -4 in which kaphaj is curable in early stages, pittaj is cured with difficulty, and vattaj is said to be in curable. In modern, diabetes is classified into type I juvenile or insulin dependent diabetes common in young age group. In our body, beta cells of pancreas secrete insulin hormone, responsible for glucose metabolism, Decreased or absent insulin causes increased concentration of glucose in blood and urine. Type 2 diabetes which is non-insulin dependent occurs in elder age group and is caused due to insulin resistance in skeletal & liver muscles, metabolic syndrome. Glucose intolerance results in either less insulin secretion or delay in insulin secretion. Classical symptoms of the disease are frequent urination (polyuria), crave for extra liquid (polydipsia), always feeling hunger

(polyphagia), wasting. Clinical sign of hyperglycemia may present with fatigue, obesity, failure to thrive, loss of motivation and difficulty in concentration. Investigations include urine test, blood glucose test- Fasting and Random glucose tolerance test, glycelated haemoglobin to rule out diabetes mellitus. In ancient times, attraction of ants & insects towards the urine of sufferer (glysauria) was used as diagnostic criteria for diabetes. Long term complications of diabetes mellitus include macrovascular disease, or diabetic microvascular. Macrovascular includes atherosclerosis, coronary heart disease, stroke, microangiopathy including retinopathy, nephropathy. Also neuropathy due to destruction of peripheral nerves. Other complications include diabetic ketoacidosis, diabetic foot & susceptibility to infections.

Management- Maharashi charaka classified madhumeha in two groups according to their vitality, constitution and disease etiology. Patients are either obese and strong or lean and weak. Treatment for obese and strong patients begins with panchkarma procedures which is aimed at reducing the obesity of the patients (apatarpana chikitsa) and lean and weak diabetic patients are given santarpana chikitsa. Both types of patients are treated with distinct therapy and diet. Exercise and diet are important in primary diabetes treatment. Patients are advised to perform Yoga Practices that benefit mind and body. Yoga improves pancreatic functions. Meditation also stimulates the endocrine function. Diet is prescribed according to age, body constitution, season and environment of the patient.

Various preparations of Yava (barley), Mudga (green gram), Old Rice, karela, Methi, Pumpkin, Cucumber, Bimbi, Triphala, Madhu are beneficial for diabetic patients. Kapha meda vardhak ahar vihaar should be avoided. In modern, Anti-Diabetic drugs and Insulin Injections are given to the patients. In Ayurveda single drugs used in diabetes are Amalaki, Meshasringi, Karvellaka, Methika, Shilajit, Vijyasaar, Jambu, Tejpattra, Guduchi, Bimbi, Khadirsara, Katphala, Kakamachi, Devdaru, are used to lower blood glucose level. Ayurvedic compound formulations given in diabetic patients include:- Chandraprabha Vati, Silajitwadi Vati, Vasantakusumakara Rasa, Trivanga Bhasma, Phalatrikadi Kwath, Vangabhasma, Dantya asava, Madhavasava, Triphala, Haridra Churna in Appropriate doses cures the disease to good extent with least complications.

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