

SANGYAHARAN SHODH

February 2003

Volume 6, Number 1



संज्ञाहरण शोध

An Official Journal of
BHARATIYA SANGYAHARAK ASSOCIATION
(Association of Anaesthetists of Indian Medicine)

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Editorial

This issue will be in your hand on the eve of the 1st International Congress and Sixth National Conference. Congratulations to every member of Association of Anaesthetists of Indian Medicine and heartiest welcome at the holy city – Varanasi, the cultural and religious centre of India since time immemorial. In this conference our Academician of both Pathies Ayurveda and Allopathy will discuss about the Integrated Health Policy. To me Integration is the need of time, the need of India and at last the need of World. This international gathering will decide the future of Medical education. We the people working for benefit of humanity are not politician, therefore we should only bother about the public health. The compartalism of Pathies are a big obstruction in the way of development of an integrated Medical Health System. Therefore we have to first abolish the compartment and to start only one medical education system, then only we can achieve our real goal. In this new-system – Ayurveda, Unani, Sidha, Homeopathy and Yoga will be treated as super speciality. The policy makers should be convinced for this new approach. In think a day will come when my dream will be a reality. There will be no enimity amongst the physician and surgeon of different Pathy but there will be a Harmony and balance.

Jai Hind Jai Sangyahan

Devendra Nath Pande
Chief Editor

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[B.A.M.S., M.D. (Ay)]

Dr. S. Subrahmanya Bhat son of Late S. Mahalinga Bhat was born on 6th May 1962 in Mangalore. He did his graduation [B.A.M.S.] from Mysore University, Karnataka in 1984 and got his M.D. (Ayurveda) from Banaras Hindu University, Varanasi in 1987. Presently he is serving as Assistant Professor and Anaesthetist in S.D.M. Ayurveda College & Hospital, Kuthpady, Udupi.



Teaching Experiences

- Total 7 years in the capacity of Lecturer and Assistant Professor.

Research Experience

- Thesis for M.D. (Ay.): Studies on Poorvakarma in relation to Anaesthesia.

Positions held

- Anaesthetist, S.D.M., College of Ayurveda, Kuthpady
- Assitant Professor, S.D.M., College of Ayurveda, Kuthpady
- External Examiner, Banaras Hindu University, Varanasi
- Examiner, Mysore University, Karnataka
- Past I.O.M. President, J.C.I., 1992
- Past Charter Vice President, Lion's Club 1996

Professional Memberships

- Member, Executive Committee, Association of Anaesthetists of Indian Medicine
- Life Member, Indian Society of Anaesthesiologists
- Life Member, Research Society of Anaesthesiologists

Conferences Attended

- Nearly 20

Papers Presented

- Four

Participation in Scientific Societies

- Life Member, National Integrated Medical Association

- Life Member, Research Society of Anaesthesiologists
- Life Member, Association of Anaesthetists of Indian Medicine
- Life Member, Indian Society of Anaesthesiologists
- Life Member, Sushruta Association

Contributions

- Organised National Conference of Sangyahan
- First Anaesthetist appointed in S.D.M. College of Ayurveda and contributed significantly to the development of section of Sangyahan in the institution.

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हिम रत्न (आयुर्वेदिक शीतल तैल - हिमालय की जड़ी-बूटियों से निर्मित)

आयुर्वेदिक दवाओं के शास्त्रीय सिद्धान्तों का अनुसरण करते हुए, हिमालय के वनों से प्राप्त प्राकृतिक जड़ी-बूटियों का प्रयोग कर, आधुनिक वैज्ञानिक अन्वेषणों और प्रयोगों के अनुसार निर्माण कर हिमरत्न तैल को जनसाधारण तक पहुँचाना ही हमारा उद्देश्य है ।

हिम रत्न शीतल तैल - इसका प्रयोग सिर दर्द दूर करता है । यह सिर को ठंडा और दिमाग को तरोताजा रखने में विशेष उपयोगी है ।

इसका मधुर गंध चित्त को प्रसन्न करता है तथा साधारण तैलों की तरह इसमें कोई रासायनिक तत्व नहीं है । इस तैल को आयुर्वेदिक चिकित्सकों के परीक्षण और उपयोगी करने वालों के प्रामाणिकतानुसार वालों की विभिन्न समस्याओं में अत्यन्त उपयोगी पाया गया है । हिमरत्न शीतल तैल चिपचिपाहट रहित, भीनी-भीनी सुगन्ध वाला बालों का पोषक है । इसके नियमित इस्तेमाल से बालों का प्राकृतिक सौन्दर्य सदैव कायम रहता है । बालों की लम्बाई बढ़ती है, बाल और सिर की त्वचा स्वस्थ रहती है । रुसी और जु दूर होता है । यह बालों की जड़ों तक पहुँचकर उन्हें पुष्ट करता है जिससे बालों का झड़ना रुक जाता है । आलोपेशिया (गंजापन) दूर होता है । असमय बाल पकना रुकता है । मामूली जलने - कटने में भी यह तैल जल्द असर करता है ।

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Research Methods in Shalya Shalakya

SHARMA K.R.

Research is the exploration of new ideas on the basis of the already existing knowledge. New problems are faced everyday for which solutions are sought by way of research.

Research is a continuous process in medical practice. Every patient who reports to you for treatment is an individual case and leaves behind tremendous scope for developing new ideas and new methods of approach for his problem. A patient is the best teacher who compels you to think seriously about his problem and evolve new methods which suit his individual requirements. It must be remembered that no two cases are similar. All individuals do not respond to your treatment in the same way. You have to alter approach to suit the individual requirements even if the diagnosis remains unaltered. This is where a clinician gets basic training for conducting research programmes. The patient is your Guide and the armamentarium available with you for treating the patient constitutes the research laboratory. In fact the whole world around you is your research laboratory. You can design your own devices to treat a particular patient. I can quote the words of my teacher Guru Prof. P.J. Deshpande who used to say that no two cases of Hernia are alike. It was fantastic to see him operating the cases of hernia with minor variations in the technique for each case; but these variations made a world of difference so far as the results of operations are concerned. So a clinician, particularly a surgeon, is researching at every step. The difference between a surgeon and a physician is evident. A physician closes his mind and regards the instructions given in the books as the final verdict. The followers of Charak Samhita will proudly say –

यदिहास्ति तदन्यत्र यज्ञेहास्ति न तत्त्वचित् ।

But a surgeon is always keen on learning from others in order to achieve perfection in his skill –

एकं शास्त्रमधीयानो न विद्याच्छास्त्र निश्चयम् ।
तस्माद्बहुश्रुतः शास्त्रं विजानीयाच्चिकित्सकः ॥

It is with this ideology that Sushruta at every step insists that his verdict is not final and that the clinician should modify it according to the requirements by using his own skill and wisdom –

स्वबुद्ध्या चापि विभजेत कृत्याकृत्यांश्च बुद्धिमान् ।

This version has been repeated by Sushruta at many places wherever he thinks that there is scope for further improvement. Therefore, a surgeon should constantly indulge himself in developing better prospects and better solutions to the problems –

वाक्सौष्टवेऽर्थविज्ञाने प्रागल्भ्ये कर्मनैपुणे ।
तदभ्यासे च सिद्धौ च यतेताध्ययनान्तगः ॥

There are two broad aspects of research in Shalya Shalakyā – (1) Historical and Literary Research and (2) Clinical Research.

Historical and Literary Research

The Historical Research is based upon the exploration of ancient literature including those of allied branches like Mythology, Astrology, Religion, Veterinary sciences and other subjects where the names of the persons related to medical science are likely to appear in some context or the other. Besides this, the Archeological discoveries also through a valuable light on the historical aspect of ancient medicine. The researcher has to develop an aptitude for the correct and logical interpretation of these findings which come from different sources and appear to be confusing or sometimes contradictory to each other. The researcher has to command a vast knowledge of varied subjects and a deep study of the concerned branches. It may be a full life-time to accomplish a small positive outcome of true historical importance, but a correctly designed sequence of historical events will solve a number of problems which are otherwise baffling to the scholars and eminent authorities.

The Literary Research in Shalya Shalakyā also has to be designed on the same pattern. Sushruta Samhita is the only authentic book available on this subject. But there are many other books written on Shalya and Shalakyā during Sushruta's period and in the later period too. Sushruta himself has mentioned four books on shalya Tatra –

औपधेनवमौरभ्रं सौश्रुतं पौष्कलावतम् ।
शेषाणां शल्यतन्त्राणां मूलान्येतानि विदिशेत् ॥

According to Sushruta, the books written by Aupadhenava, Aurabhra, Sushruta and Paushkalavata form the basis of all the other books written on Shalya Tantra in the later phase. Today, we have Sushruta Samhita almost in its complete form. The books on Shalakyā Tantra written by Nimi, Kankayana, Gargya, Bhoja and others are also missing. But since their references are available scattered in different commentaries, the original texts may also be discovered through a planned research work. For this purpose, an approach should be made to the old traditional Vaidyas who are practising in the remote areas of different states of the Country. The other neighbouring countries like Nepal, Myanmar, Shri Lanka and others where the Indian culture was prevalent at one time, have the possibilities of this rich heritage of Ayurveda hidden with the ancient practitioners in remote areas. This is a highly skilled work which can only be accomplished with the help of research agencies run by the Government. Exploration of ancient Libraries in the developed,

developing and underdeveloped countries can also bring some fruitful results. To sum up, the literary research requires a good access to the unexplored personal libraries scattered in the remote areas of the countries where Ayurveda at one time, has been the system of medical practice.

This also includes the traditional practitioners who have been practising different branches of Shalya and Shalakyia Tantra like Kshara Karma, Agni Karma, Raktavasechana, application of Jalauka, Shringa and Alabu etc. as their family-trades. Unless a contact is established with these traditional practitioners, the true research outcome of ancient missing link of literature is not possible. Yet, another aspect of literary research is the correction and modification of the already existing literature. This should be done not only to fulfil the grammatical requirements, but also should be applicable on human beings since Ayurveda, after all, is a practical science. Sushruta's views in this connection are worth quoting –

असद्वादि प्रयुक्तानां वाक्यानां प्रतिषेधनम् ।
स्ववाक्यसिद्धिरपि च क्रियते तन्त्रयुक्तिः ॥
व्यक्तानोक्तास्तु ये ह्याथा लीना चाप्यनिर्मताः ।
लेशोक्ताः ये च केचित्स्युस्तेषां चापि प्रसाधनम् ॥

Clinical Research

The Clinical Research is the most important aspect of Ayurvedic research, particularly in the field of Shalya and Shalakyia. It has to be conducted under the strict discipline of scientific methods of clinical research. The problem for conducting research should be carefully formulated. Formulation of a problem is the highly important aspect of a clinical research. A correctly formulated problem can only lead to correct conclusions. Problem is the back-bone of the entire research procedure. It should be remembered that in a research work you have to arrive at unknown conclusions starting from factors which are already known. To proceed from known to unknown is the correct method adopted in a clinical research. Therefore, it is very necessary that there is only one unknown variable in a research programme which has to be compared with a known component, the effect of which is very well established and accepted beyond all controversies. Two variables can never be compared with each other. The results of such a comparison will always be fake. In short, a clinical research should have the following essential components –

1. Proper selection of a problem.
2. Pin-pointed diagnosis.
3. Known control for comparison of results.
4. Only one unknown variable.
5. Placebo study where known control is not possible.
6. Double-blind or Triple-blind trials in case of drug research.

7. Objective parameters to be properly tabulated and calculated using statistical methods.
8. All subjective findings should be converted into mathematical numerals so that proper grading can be done.

Selection of Problem

The problem to be selected for a Research Inquiry should be such for which there is no satisfactory remedy available in any existing or prevailing medical practices. It is not sufficient to say that since Agni karma has been indicated for the treatment of Hernia, so the effect of Agni Karma in these cases should be established by way of research. It must be remembered that human beings are not experimental animals. If a better and 100% reliable operative treatment is available for hernia, it is criminal to try Agni Karma in these cases. The problem selected should be such for which there is hardly any satisfactory treatment available in any type of medico-surgical pathy or where recurrence is inevitable. Fistula-in-ano is an ideal example for this where inspite of the repeated and radical surgery, recurrence is a rule. Another point which should be considered while selecting a problem, is the incidence of post-operative complications, though the disease is curable by surgery. Cholecystitis with Cholelithiasis is an example for this. Though the disease can be cured by Cholecystectomy, the post-cholecystectomy syndrome which occurs in 90% of the cases, should form the problem for research.

Pin-pointed Diagnosis

It only means that the model selected for research should be diagnosed accurately and confirmed by proper investigations. A vague diagnosis does not lead to correct interpretations because here the model is not uniform. Uniformity of cases is very essential requirement of a scientifically conducted research programme. For this, one has to rely on modern diagnosis rather than the Ayurvedic diagnosis. For example, a person working on Timira can not maintain the uniform standard of cases because the cases included under Timira range from various refractive errors to different retinopathies and also different types of cataract for which treatment is altogether different. Therefore, it is very necessary to work on a particular type of Retinopathy (e.g. Diabetic Retinopathy) rather than to work with the diagnosis of Timira. The same thing is true for fistula-in-ano because all cases of Bhagandara are not essentially fistula-in-ano. Unless the diagnosis is pin-pointed, further scientific work cannot proceed.

Known Control Group

The comparison should always be made between known and unknown groups. The known group is the one, the results of which are already known and have been repeatedly reproduced by the standard scientific procedures. Only such a control

group can give reliable and comparative results. There is no point in comparing two groups, the results of which are already obscure. Only known can be compared with the unknown. Therefore, the control group should preferably be selected where modern drugs have been used, the degree of the effect of which is already known. The unknown drug can always be assessed in terms of "better than" or "inferior than" the modern control drug.

The Unknown Variable

It is important to have only one unknown variable in your research plan because too many variables will only lead to confusion with no definite inferences. It is ideal to have only one variable which is subjected to the research work and one known control with which the results can be compared. If there is another variable to be studied in the same project, its results should also be compared with the same control group and not with the other variable or the trial drug.

The Placebo

Placebo is an important component of clinical research. It is required in cases which suffer from a disease of long standing and have already undergone various types of treatment from modern, Ayurvedic and other systems of medicine. These cases are termed as "Self Control". The placebo is introduced in order to remove bias of the researcher. The placebo should look like the trial drug in all aspects and should be administered in the same way as the trial drug. At the same time, it should not produce any harm or ill effect on the patient. The results of the trial drug can be compared with the placebo group and thus the true efficacy of the trial drug can be assessed.

Double blind/Triple blind studies

A research trial conducted on these lines is considered to be 'fool-proof'. This method has been evolved in order to remove the 'bias' component which so often impresses upon the researcher. Normally the patient is diagnosed and treated by the same person who is conducting the research trial. He also carries out the assessment part of the trial and during this procedure he, in his subconscious mind, tends to favour the results of the trial drug. This is known as 'bias' which is against the scientific standards of a research programme. This can be overcome if the assessment is made by another person who does not know anything about the patient and the trial programme. The results so obtained are reliable because the assessment is made with an unbiased mind. This is called a 'Double Blind Study'. The patients are diagnosed and treated by a different person but the results are assessed by another team which is totally unaware of the groups of control, placebo and the trial drug. In the same way, if the patients are diagnosed by one party and the drugs are administered by another team who does not know anything about the

groups of patients and the assessment is made by a third party, it is known as the 'Triple Blind Study'. In a 'double blind' or a 'triple blind' study, a meticulous coding of the patients and the drugs is necessary which is known only to a person who is not taking part in the research programme. Thus, the 'double blind' or the 'triple blind' trials can produce the correct results.

The objective parameters are regarded as the reliable method of assessment because here the findings are produced by way of laboratory investigations conducted at definite intervals. The clinician has no role in producing the results. At the same time, statistical calculations can be made on the basis of the laboratory findings.

On the contrary, the clinical improvement of the cases is observed in terms of the subjective parameters, the source of which is the clinical examination conducted regularly and also the narrations of the patients about the feelings of his well being. These changes noticed during the course of a research programme have a definite influence over the final results, but it is difficult to compare them unless they are transformed into mathematical numerals. The findings can be attributed arbitrary numbers and the total thus achieved after aggregating all the findings, can be compared in different groups by subjecting them to statistical calculations.

A clinical research conducted on these lines will prove beneficial for the patients and will also add to the knowledge thus enriching the science at large. The research in Shalya Shalakya also follows these norms of scientific standards. The only difference is that here the models selected for research are surgical oriented. If a disease is curable by surgical operations in modern medicine, it has no scope of research in Ayurveda. Only such conditions which have no cure even after surgery or where there is tendency for recurrence even if removed surgically or else if there are unavoidable complications after surgery, form the group of conditions where research is required in Ayurveda. The Ayurvedic procedures including the parasurgical measures like Kshara Karma, Agnikarma and Raktavasechana and also other surgicomical procedures mentioned in Ayurveda, can solve many problems where the modern medical treatment ends in a blind alley.

Neonatal Resuscitation: An Ayurvedic Approach

SHANKAR RAM* AND SHARMA R.D.**

Perinatal hypoxia and birth asphyxia are the leading causes of perinatal mortality in our country. As per statistic 47/1000 live birth babies die in India every year and among them one half of early neonatal deaths occur during first 24 hours of life. These deaths are due to the absence of expert resuscitator. Approximate 70% infants who requires resuscitation, are outcome of high risk pregnancies. The main principle of resuscitation is to assist infant in establishing adequate ventilation, proper pulmonary perfusion and optimum cardiac output. Resuscitation of newborn had been described elaborately in Ayurvedic literature since time immemorial. The menouver is very helpful even today for neonatal survival thus can contribute in reducing the sequelae caused by birth asphyxia. These references reveal that ancient Ayurvedic scholars were definitely well versed with process of resuscitation.

Ancient Ayurvedic texts have described the method to revive both normal as well as asphyxiated baby after birth. Among them Charaka Samhita seems to be the foremost Samhita. Charak had elaborated the process as under:

1. Resuscitation of normal baby

Charaka has prescribed following immediate steps to revive normal baby after delivery:

अश्मनोः संधट्टनं कर्णयोर्मूले, शीतोद्केनोष्णोदकेन वा मुखपरिपेकः, तथा स क्लेशविहतान् प्राणान् प्रत्यागमनम् ॥
च.शा.८/४२

- (i) Sound to be produced, by striking or rubbing two stones near the base of ear (mastoid process).
- (ii) Shower of water over the face of child (Hot or cold water according to season-Chakrapani).
- (iii) Cleaning of orifices and oral cavity with swab made over indexfinger.

Certain changes in the sequence of process for resuscitation had been mentioned by Sushruta Samhita but most of the process is similar to Charaka however the process striking of stones at base of ear is ignored. The sequence of resuscitation is as follows:

- (i) Cleaning of vernix caseosa.
- (ii) Cleaning of oral cavity with paste made by mixing rock salt and ghrita.
- (iii) Establishment of respiration by shower of cold water on the face.
(Dalhana comentry on Sushruta Sharira 10/12)

* Jr. Resident, Department of Prasuti Tantra, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

** Head, Department of Prasuti Tantra, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

According to Astanga sangraha (A.S.U. ½-5) revival of normal baby is as follows:

- (i) Cleaning of Ulba (vernix caseosa) with rock salt and ghritha.
- (ii) Anointing of body with Bala taila. (to alleviate the exertion caused during process of delivery).
- (iii) Striking of stone at the base of ear.

According to Astanga hridya (A.H.U. 1/1-2) revival of normal baby is as follows:

- (i) Cleaning of vernix caseosa with rock salt and ghritha.
- (ii) Anointing of body with Bala taila. (to alleviate stress of delivery).
- (iii) Striking of stones at the base of ear.

Presently the process of the resuscitation is followed as under:

- Cleaning of oral cavity through manual of suctioning.
- Maintain temp in Thermoneutral-range (36.5-37.5°C).

Usually, first of all, auditory power develops which precedes the verbal power, probably the mention of striking of stones at the base of ear in Ayurvedic texts seems to produce auditory stimulus which through starting response ends up with cry (verbal power).

Sprinkling of water (cold/hot) according to season or alternatively causes tactile sensory stimulation which enhances cardio-respiratory response.

2. Resuscitation of unconscious or asphyxiated child

Astanga sangraha has described the features of asphyxiated baby at birth as follows:

- (a) Fever.
- (b) Deep unconsciousness.
- (c) No cry.
- (d) Having unstable status of Dhatus (poor cardiac output).
- (e) Too much limping.
- (f) Look like dead (feature of dying)

Sushruta has not described management of asphyxiated baby but Charaka and both Vagbhatas have similar views.

Charaka Samhita has described that if child does not respond to normal resuscitation process and presents with the features of asphyxia then the following procedure should be adopted:

कृष्णकपालिकाशूर्पेण चैनमभिनिष्पुणीयुर्यद्यचेष्टः स्याद् यावत् प्राणानां प्रत्यागमनम् ।

Vigorous fanning with winnowing basket made of Krisnakaplika made of Ishika-Nala-Munja-Vamsha or with a blackened broken earthen pot, till the child is fully revived.

As per Vagbhatas if child that is not revived by while doing irrigation with Bala taila and turns comatosed (without reflexes) then following procedure should be adopted:

यदि वाचेष्ट एव स्यात्ततः कृष्णकपालिकया शूर्पेण चैनमभिनिष्पुनीयात् ।
दक्षिणकर्णमूले च मन्त्रमस्योच्चारयेत् ॥

अ.स.उ. १/४

Fanning vigorously with winnowing basket (blackened by applying smoke).

Usually, fanning vigorously with winnowing basket seems to increase concentration of oxygen though displacement of air.

According to modern medicine asphyxiated baby (who does not cry or has no respiration) should be assessed through Apgar score at 1 min and reassessed after 5 10 minute, during the process of revival of baby.

Apgar Score

Sign	Score		
	0	1	2
Appearance (colour)	Pallid	Blue	Pink
Pulse (H/R)	0	<100	>100
Grimace (Tone of muscle)	Flaccid	Some flexion	Normal
Activity (Reaction)	Normal	Facial grimace	Grasp/cough
Respiration	Absent	Gasping	Regular

Screening of Apgar score in 1 min -
8-10 – Normal
5-7- Mild asphyxia
3-4- Moderate asphyxia
0-2- Severe asphyxia

Management of asphyxiated baby according to Apgar is as follows:

(a) Mild asphyxia:

- Oxygen with face mask

(b) Moderate asphyxia:

- Administer oxygen under positive pressure with bag and mask.
- Naloxone 0.1 mg/kg (if no spontaneous respiration or H/o pethidine induced respiratory depression).

(c) Severe asphyxia:

- Prompt endotracheal intubation with CPPV (if H/R <60, failure of respiration).
- Cardiac massage by encircling the chest with both hands. (Ventilation/massage ratio)- 1:3.
- Medication (to be used only after establishing airway) as follows:
 - (1) Adrenaline (if H/R <60 min) 1:10000 dilution (0.1 CC/kg through ET or I/V).
 - (2) NaHCO₃ 1:1 dilution with distill water (1-3 CC/kg B.W. slowly over 1 min (if baby H/R does not improve with ventilation) however arrangement after estimation of blood gases.
 - (3) Plasma expander (poor peripheral pulse, shock etc), O⁻ blood, plasma, Ringer lactate - 10 ml/kg IV slowly.
 - (4) Naloxone (if H/o pethidine within 6 hr. of delivery) 0.01 mg/kg I/V repeated after 5 minute.
 - (5) Dextrose 10% I/V to combat hypoglycemia.

Summurised Resuscitation in newborn child as per Ayurvedic and modern texts can as follows:

Texts	Normal Child	Asphyxiated child
Charaka Samhita	<ul style="list-style-type: none"> • Striking of stones • Shower of hot/cold water over the face. 	Vigorous fanning with winnowing basket or blackend broken earthen pot.
Sushruta Samhita	<ul style="list-style-type: none"> • Cleaning of vernix caseosa • Cleaning oral cavity with rock salt and ghrita. • Revival with shower of cold water. 	Not mentioned
Astanga sangraha	<ul style="list-style-type: none"> • Cleaning of ulva (Vernix caseosa) • Anointing of body with Bala taila. • Striking of stones. 	Vigorous Fanning with winnowing basket
Astanga hridya	<ul style="list-style-type: none"> • As Astanga sangraha 	As Astanga sangraha
Modern texts	<ul style="list-style-type: none"> • Cleaning and suctioning of oral cavity. • Maintain temp in TN range. 	According to assessment of Apgar scoring.

3. Resuscitation in baby with Ulvaka (Sahaj or Ambupurna disease)

(A.S.U. 2/91)

According to Vridha Vagbhata, due to improper emesis of Garbhodaka (liquor amni) or influence of sleshma situated in throat the Rasa gets vitiated which encircles or obstructs the Margas (channels of Pranavaha Srotasas). The features of disease are as follows:

- Child is tight fistled.
- Signs of involvement of hridya (cardiac disorder).
- Akshepaka (convulsion – due to hypoxia).
- Shwasa (dyspnoea-due to partial obstruction of trachea).
- Kasa (cough – due to irritation in throat).
- Chhardi (vomiting – due to gastritis).
- Jwara (fever-due to infection).

Management

- Channels (Srotasas) should be cleaned by providing goat urine in between the feeds (in the morning).
- Ghrita medicated with Bilvadimula, Brihati, Panchakola, Vidanga, Saindhava, Ajali, Chavika, Devadaru, Himsra, Hingu, Lashuna, Vyosh, should be given orally (it caused emesis of liquor amni lodged in Srotsas).
- Milk (breast milk) medicated with paste of Trikatu, Vartaki, Vacha and Haridara should be given.

Contraindications

- Bath and massage (due to obstruction of Pranavaha srotasa).

According to modern medical literatures Ulvaka may be considered as aspiration pneumonia. During the process of delivery infant often initiate vigorous respiratory movements in utero owing to interference with the supply of oxygen via the placenta, under such circumstances the infant may aspirate amniotic fluid containing debris such as vernix caseosa, epithelial cells, meconium or material from birth canal. Pathogenic bacteria may frequently accompany the aspirated material. The debris of aspirated fluid block the tiny airways, interfere with alveolar exchange of O₂ and CO₂, which may produce respiratory distress, tachypnoea, retraction, grunting and cyanosis. Partial obstruction of bronchial tree may lead to penumothorax, pneumomediastinum or both.

Treatment

1. Suctioning the trachea by mucus sucker.
2. Artificial oxygenation.
3. Antibiotics and corticosteroids.

4. Feeding of baby in propped up schedule.

Most of the babies revived are during normal procedures of resuscitation but few are asphyxiated who can be treated with above mentioned procedures recommended by ancient scholars. These procedures are used at present by modern sciences also except with alterations. Such children if not revived properly suffer from neuromotor disability (cerebral palsy, mental retardation etc.) therefore, adequate growth and development is not achieved by the child. Vagbhata says that in these children attainment of youth is doubtful due to various complications. Thus resuscitation is very important procedure in newborns specially during each and every high risk pregnancy.

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Dysmenorrhoea and Daihika Prakriti

NEELAM*

Abstract

Dysmenorrhoea means the painful menstruation. It is common reason for losing time at school or work, or for visiting the family doctor. Dysmenorrhoea is one of the common clinical manifestation dominated by pre or menstrual pain of varying degree along with other symptoms.

Individualization is done on the basis of physiological constitution termed as Prakriti-Daihika Prakriti of a person is named according to predominance of doshas e.g. vata, pitta, and kapha. This dosha prakriti is of seven types. Prakriti plays a very significant role in the diagnosis and treatment of a disease. The persons of different prakriti may react differently to the diseases caused by these doshas or may also behave in different ways in different states of health and disease.

Total 105 cases of different prakriti having painful menstruation have been studied and it was found that the women having vata in their prakriti are more sufferer from the dysmenorrhoea.

Key words

Prakriti, Daihika Prakriti, Dysmenorrhoea, Menstruation.

Introduction

Dysmenorrhoea signifies pain due to menstruation. 50% of women are said to experience some discomfort in relation to menstruation. Probably 5 to 10% girls in their late teens and women in early twenties are incapacitated for several hours each month. This painful menstruation can interrupt woman's educational, social and economic life.

Dysmenorrhoea is classified as primary or secondary. In primary dysmenorrhoea there is usually no underlying organic pathology, while secondary dysmenorrhoea is often associated with pelvic pathology.

Ayurveda is a science of life, which deals with knowledge of factors responsible for diseases as well as for their prevention and cure of diseases, knowledge of harmful and beneficial substance is for individuals. Every individual has its own specific physical constitution, which is termed as daihika prakriti. The prakriti is determined by the dosha during fertilization and classified on the basis of relative predominance of one or more of these vata, pitta and kapha doshas.

* Sr. Lecturer, Department of Prasuti Tantra, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

Charaka has given the great emphasis on the examination of prakriti of individual at the time of diagnosis of disease, because this prakriti influence the basic tolerance, for example a patient of vata prakriti may complaint of very severe pain which actually is of a minor organic involvement, on the other hand the individual of kapha prakriti may not express the pain arising due to major or gross organic pathology, which needs good diagnosis and better treatment.

If the physician does not take cognizance of the basic prakriti of individual he is likely to be misled in diagnosis of the disease. The persons of different prakriti will need different line of treatment and dietetic management even if suffering from the same disease.

Aim of study

To see the role of daihika prakriti in dysmenorrhoea.

Criteria for selection of cases

Women having only painful periods for three or more cycles, but not having any psychological or chronic systemic disorders, marked anaemia. Inflammatory, infective or organic pathology of reproductive system.

Method and Materials

After detailed history, complete general, systemic and local examinations and investigations total 105 women of above criteria of different age groups were selected for the present study. In these selected cases special assessment of prakriti was recorded according the specific proforma and daihika prakriti was labelled on the basis of maximum points belonging to that particular prakriti.

Results

Table 1. Showing total cases of dysmenorrhoea of different types of daihika prakriti.

Name of prakriti	Total cases (n = 105)	Percentage
Vatika	35	33.33
Paittika	-	-
Shlaishmika	4	3.81
Vata - Paittika	16	15.24
Vata - Shlaishmika	49	46.70
Pitta - Shlaishmika	1	0.95
Sama Prakriti	-	-

Table 2. Showing the incidence of age and parity in total cases.

Age in years	No. of cases (n = 105)	Percentage	Parity in numbers	No. of cases (n = 105)	Percentage
15 - 20	30	28.57	0	58	55.24
20 - 25	29	27.60	1 - 2	26	24.77
25 - 30	17	16.19	3 - 4	9	8.57
30 - 35	9	8.57	5 - 6	9	8.57
35 - above	20	19.07	7 - above	3	2.85

Table 3. Showing the duration and character of pain in total cases according the different types of prakriti.

Duration of pain	Characters of pain	Total cases (n = 105)	Vatika		Shlaishmika		Vata-Paittika		Vata Shlaishmika		Pitta Shlaishmika	
			No. cases	No. cases	No. cases	No. cases	No. cases	No. cases	No. cases	No. cases		
Pre Menstrual	Mild	1	1	-	-	-	-	-	-	-	-	-
	Moderate	2	1	1	-	-	-	-	-	-	-	-
	Severe	28	10	-	4	14	-	-	-	-	-	-
	Very severe	4	-	-	1	2	1	-	-	-	-	-
Menstrual	Moderate	3	1	1	-	1	-	-	-	-	-	-
	Severe	26	4	1	11	10	-	-	-	-	-	-
	Very severe	16	6	-	-	10	-	-	-	-	-	-
Pan Menstrual	Mild	1	1	-	-	-	-	-	-	-	-	-
	Moderate	2	-	1	-	1	-	-	-	-	-	-
	Severe	20	9	-	-	11	-	-	-	-	-	-
	Very severe	2	2	-	-	-	-	-	-	-	-	-

Discussion

Dysmenorrhoea was totally absent in paittika or same prakriti women. Mostly nulliparous women of early age group that is 15 to 25 years were suffering from this disease. Pre and Pan-menstrual severe pain were seen in maximum cases. All types of pains due to less pain threshold were very common symptom of dysmenorrhoea.

Hamen (1944) also found that woman with primary dysmenorrhoea had a lower pain threshold than normal woman. Woman of vatika and Vata-Shlaishmika prakrita were maximum sufferer with dysmenorrhoea, due to fact that vata is governing force for bringing the rakta to garbhasaya for its discharge, probably the women having prominence of vata in their prakriti suffered from its disorders much more than the women of other prakritis.

Conclusion

1. Women having vata in their prakriti are more sufferer from dysmenorrhoea.
2. Dysmenorrhoea can be prevented by mode of life and dietetic management which may not vitiate the vata.
3. Individual Prakriti can change the diagnosis, and even the line of treatment, which helps in better cure.

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Sushruta's Contribution in Cataract Surgery

SRIVASTAVA VIJAY KUMAR*

Acharya Sushruta, the father of surgery had dealt with Eye diseases and it was on the basis of his writings more than 1000 of years BC that ophthalmology continued to be practiced for centuries together. In his treatise sushruta samhita uttar tantra. 76 varieties of Eye diseases have been described in detail. Out of which several problems were managed surgically by different procedures.

The history of medicine reveals the fact that the knowledge of ophthalmology in Egyptian, Greek and later on in Muslims was highly associated with superstition, mysticism and legends. Eye was considered a representative of deities and gods. A glance could cause death and that is how the Eye become a symbol of force.

Before 1745 the technique of cataract operation, adapted by Sushruta in India was the only authentic and rational. Because the first ever lens extraction was performed by a French surgeon, J. Daviel, who published his paper in the year 1753 in French which was translated in to English in 1914. As a matter of fact the western scholars were in opinion to believe that a cataract consists in a kind of membrane and that this membrane is formed by an inspissation of the aqueous humour. Truly speaking they did not have the concept that the cataract formation results due to opacification of the crystalline lens or its capsule.

Neither the morphology nor the functioning status of the lens as a structure inside the eye was precisely understood till the beginning of 16th century.

But in Sushruta Samhita the description of crystalline lens has been given as following-

स्लेष्मणां बहलं स्निग्धं शंखकुन्देन्दुपाण्डुरम् ।

चलत्पद्मपलाशस्यः शुक्तो विन्दुरिवाम्भसः ॥ (S.S.U.T. 7/30)

i.e. when kapha afflicts the mandala, the latter becomes thick, smooth, white like a conch shell, Kunda flower or the moon or else like a shining drop of water on a moving leaf of lotus.

In the same chapter the features of the cataract (Linga-nasha) have been very well described as-

रूपाद्धि सर्वतो दृष्टिं लिङ्नाशः स उच्यते ।

तस्मिन्नपि तमोभूते नातिरूढे महागदे ।

चन्द्रादित्यौ सनत्रावन्तरीक्षे च विद्युतः ॥

* Lecturer, Department of Shalya-Shalakyā, Government Ayurvedic College and Hospital, Varanasi (U.P.)

निर्मलानि च तेजांसि भ्राजिष्णूति च पश्यति ॥

सएव लिङ्ग नाशस्तु नीलिका काच सञ्ज्ञितः । (S.S.U.T. 7/15, 16, 17)

i.e. when the vision gets obstructed all around, the disease is termed as Linganasha (Mature cataract). When this serious disease has not far advanced and the vision is getting last (dark), the patient can still see the moon, the sun and the stars, as well as lightening in the sky and other dark, bright and luminous objects. This Linganasha is also called by the name of Nilika or Kancha (Immature cataract).

The research paper published by French surgeon in the year 1753 also reveals the fact that in true cataract the patient must be able to distinguish light from darkness and the pupil must dilate (Pupillary reaction to light) and the false cataract that of the bad variety, consists of a clouding of the crystal combined with immobility of the pupil which is either too markedly dilated or constricted.

In the same way Sushruta has clearly mentioned about the indications of cataract surgery as-

श्लैष्मिके लिङ्गनाशे तु कर्म वक्ष्यामि सिद्धये ।

न चेदर्धेन्दु धर्मांश्चु बिन्दुमुक्ताकृतिः स्थिर ॥

बिषमो वा तनुर्मध्ये राजिमान् वा बहुप्रभः ॥

दृष्टिस्थो लक्ष्यते दोषः सरूजो वा सलोहितः ॥ (S.S.U.T. 7/55, 56)

i.e. for the successful treatment of Kaphaja Linganasha (cataract), the selection of the case is essential when the dosha situated in the lens does not appear semilunar, or does not resemble a sweat drop or a pearl appearance. It should neither be fixed, Irregular, thin in the middle, striated or excessively shining nor be associated with pain or redness. (These are the features of complicated or Traumatic cataract which have got bad prognosis if operated).

As in the beginning it has been mentioned that the ever lens extraction was done by a French surgeon J. Daviel in the middle of 18th century. Before that Greeks, Romans or Arabs used to do couching like procedure for cataract surgery. In which they use to remove a membrane like structure of the eye by puncturing or pushing it with the help of fine needles without understanding its anatomy. Some modern as well as Ayurvedic Ophthalmologists have referred this technique as Sushruta's method of cataract operation, which is incorrect.

Sushruta has Enumerated the detailed operative procedure of the Linganasha (cataract) surgery as-

स्निग्धस्विन्नस्य तस्याथ काले नात्युष्ण शीतले ।

यन्त्रितस्योपविष्टस्य स्वां नासां पश्यतः समम् ॥

मतिमान् शुक्लभागी र्द्धौ कृष्णान्मुक्त्वाह्नपाडतः ।
उन्मील्य नयने सम्यक् सिराजाल विवर्जिते ॥
नाथो नोर्ध्वं न पार्श्वार्भ्यां छिद्रे दैवकृते ततः ।
शलाकया प्रयत्नेन विश्वस्तं यव वक्रया ॥
मध्य प्रदेशिन्यागुष्ठस्थिर हस्त गृहीतया ।
दक्षिणेन भिषक् सव्यं विध्येत सव्येन चेतारत् ॥
वारिविन्द्वागमः सम्यग् भवेच्छब्दस्तथा व्यधे ।
संसिच्य विद्धमात्रन्तु योषित्स्न्येन कोविदः ॥
स्थिरे दोषे चले वाऽपि स्वेदयेदक्षि बाह्यतः ।
सम्यक् शलाकां संस्थाप्य भङ्गैरनिल नाशनैः ॥
शलाकाग्रेण तु ततो निर्लिरवेद्दृष्टि मण्डलम् ।
विध्यतो योऽय पावर्वेऽक्षणस्तं रूद्ध्वा नासिकापुटम् ॥
उच्छिद्धनेन हर्तव्यो दृष्टि मण्डलगः कफः ॥

(S.S.U.T. 7/57,58,59,60,61,62,63)

i.e. In suitable weather and after proper preparation and the patient should be made to sit and positioned properly after which he should be asked to fix his gaze towards his own nose continuously. Then the surgeon should hold a shalaky (barley shaped instrument) between the thumb, middle finger and Index finger of the right hand and should open the eyes and puncture the eye-ball properly with confidence towards the temporal side avoiding the parts of the white of the eye from the cornea. The puncture should be made neither too high or too low, nor at the sides and saving he network of veins. The surgeon should operate with his right hand on the left eye and with the left hand on the right eye. The proper puncturing is recognized by the production of a typical sound and by the out-flow of a drop of liquid. As soon as the puncture has been done, the Shalaka should be irrigated with human milk and fomented with vata pacifying leaves from outside. Then the lens should be punctured and scraped with the point of Shalaka and the patient should be made to blow out violently the Kapha which has accumulated in the lens after closing the nostril of the opposite side.

Sushruta not only enumerated the detailed procedure of cataract operation but also feature of proper operation, post operative complications (Immediate and delayed), their management and post operative care of the patient (Immediate and Subsequent).

निरम्न इव घर्माश्रुयदा दृष्टिः प्रकाशते ।

तदाऽसौ लिखिता सम्यग् ज्ञेया या चापि निर्व्यथा ॥ (S.S.U.T. 7/64)

i.e. when the dristi becomes as bright as the sun in a cloudless sky and there is no pain, it should be regarded as properly Scraped.

पूर्यते शोणिते नाक्षि सिरा वेधाद्धिसर्पता । (S.S.U.T. 7/72)

i.e. In case a vein is punctured, the eye gets filled with blood. (Blood in Ant. chamber). In the same reference sushruta has added that if the puncturing of the globe is done in incorrect manner, these will be swelling, pain, redness watering in the affected eye. These complications can be treated with proper irrigation of the eye with warm ghrita, blood letting etc.

रागः शोफाऽर्बुदं चोषो बुदबुदं शूकराक्षिता ॥

अधिमन्थादमश्चान्ये रोगाः स्युर्व्यधदोषजाः ॥ (S.S.U.T. 7/85)

i.e. complications (delayed) resulting due to technical errors during operation or from a harmful regimen (after the operation), are redness, inflammation, growths, sucking pain, squint (Due to Injury of the lateral rectus muscle) and adhimanthas (Glaucoma) etc.

ततो दृष्टेषु रूपेषु शलाकामाहरेच्छनैः ।

धृतेनाभ्यजय नयनं वस्त्रवट्टेन वेष्टयेत् ।

ततो गृहे निराबाधे शयीतोत्तान एव च ।

उद्गार कास क्ष्वथुष्ठीवनोत्कम्पनानि च । (S.S.U.T. 7/66,67,68)

i.e. when the patient is able to visulise objects, the Shalaka should be with drawn slowly. The eye then should be lubricated with ghrita and bandaged with a cloth. There after the patient should be made to be supine in a room free from disturbing agencies (like Dust, smoke, the sun etc.) and should be instructed to avoid belching, coughing, sneezing, spiting and shivering during the period.

त्रयहात्-त्रयहाच्च धावेत कषायैरनिलापहैः ।

वायोर्भयात् त्रयहादूर्ध्वं स्वेदयेदक्षि पूर्ववत् ।

दशाहमेवं संयम्य हितं दृष्टि प्रसादनम् ।

पश्चात्कर्म च सेवेत लध्वन्नं चापि मात्रया ॥ (S.S.U.T. 7/69,70)

i.e. in subsequent care every third day the eye should be washed with Vata allaying decoctions and should be fomented from third day on wards as before to avoid the danger of Vata vitiation. Having observed the regimen for ten days measures to

improve the vision along with the other post operative care and light diet in moderate quantity should be given.

The instrument used for operation named shalaka should be eight fingers in length, wrapped up with thread in the center and should be like the bed of a flower at the ends and should be made of copper, iron or gold. Because a rough Shalaka can produce many complications during operation. In the same reference several recipes have been advised to combat post operative pain, redness watering etc.

There may be some differences in opinion over the type of operation, done by Sushruta and also over the site of puncturing of the eyeball with the probe (Shalaka). The operation performed by sushruta having good results was done on a Hypermature cataract in which the soft cortex liquifies and appears milky. As soon as the probe ruptures the anterior capsule the liquified lens matter escapes from the capsule bag and dispersed all over the anterior and posterior chambers of the eye ball, with the result the pupil becomes clear, like cloudless less sky and bright as the sun (S.S.V.T. 17/69). As for as the site of the puncturing of the eye ball is concerned, it may be a parsplana approach. Now a days in this technique of surgery the lens or the Vitreous is removed through a small incision in the region of parsplana, specially for the congenital or Traumatic cataract, Vitreous haemorrhage, posterior segment intra ocular foreign body etc.

Last but not least it can be say that the operative technique adopted by Sushruta for cataract operation is so comprehensive, elaborative and systematic that no one can ignore it in considering as the first scientific procedure of intra-ocular operation performed over the lens for the treatment of cataract.

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Lox

(Lidocaine)

Anawin

(Bupivacaine)

REGIONAL ANAESTHETICS

Fent

(Fentanyl)

Supridol

(Tramadol)

ANALGESICS

Riddof

(Pentazocine)

Nex

(Naloxone)

OPIOID ANTAGONIST

Thiosol

(Thiopentone)

INDUCTION AGENTS

Aneket

(Ketamine)

Myostigmin

(Neostigmine)

REVERSAL AGENTS

Mezolam

(Midazolam)

PREMEDICANTS

Neomit

(Ondansetron)



NEON

Offers

Myorelex

(Succinyl)

Neovec

(Vecuronium)

Neocuron

(Pancuronium)

MUSCLE RELAXANTS

Hypnothane

(Halothane)

Sofane

(Isoflurane)

INHALATION AGENTS

Tropine

(Atropine)

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WIDER CHOICE

The Effect of Indigenous Drugs on Testicular Regeneration

AGRAWAL H.S.K.*

The male infertility poses a great problem with regard to its aetiopathogenesis and management. So far the treatment of male infertility has been largely disappointing. Various therapeutic agents have been claimed to be effective in such cases. However, the therapeutic efficacy of these measures has not yet been proved beyond doubt and as such none of these agents have been accepted as a routine measure. Although testosterone and gonadotropins administration in cases of azoospermia and oligospermia have shown some promising results. However, these agents have also been found to be of limited values.

In Ayurvedic classics a great emphasis has been laid on the management of male infertility and a number of herbal drugs have been advocated to promote the virility and fertility of men. However, so far no scientific, well planned and controlled study has been undertaken to evaluate the possible beneficial effects of the above drugs.

Considering the above facts, in present study the possible regenerative or spermatogenic effect of certain indigenous drugs i.e. *Mucuna pruriens*, *Asparagus racemoses* has been investigated following experimentally produced testicular degeneration by irradiation in albino rats. Simultaneously the beneficial effects of these drugs have also been evaluated in proved cases of male infertility.

Thus the present study has been divided in two parts i.e. experimental and clinical.

Experimental studies

The testicular degeneration was produced in albino rats by local irradiation with a Cobalt 60 Source. Each animal received a total radiation of 600 r in two equally divided doses. These irradiated animals were treated with gonadotropin (known control), *Mucuna pruriens*, *Asparagus racemoses*, for six weeks. The gonadotropin are known to restore the spermatogenesis after irradiation (Momigliano 1944, Binhemmer 1967). The irradiation induced testicular degeneration and the possible regenerative effect of above agents was assessed in terms of body weight and changes in reproductive organ weight testicular alkaline phosphatase activity, histology and histochemistry.

In response to irradiation the body weight of animals were significantly decreased at the end of six weeks. On the other hand irradiated animals treated with gonadotropins and indigenous drugs showed a significant increase in their body

* Dy. Medical Superintendent (IM) and Consultant, Department of Prasuti Tantra, S.S. Hospital, B.H.U., Varanasi

weight. The weight of testes and accessory sex organs were significantly reduced following local testicular irradiation. The reduction in weight is well documented and is believed to be due to degeneration of somniferous epithelium and depletion of normal cellular population (Ellinger F. 1957). The gonadotropin administration increased the weight of above organs as compared to irradiated ones. However treatment wit indigenous drugs did not affect the weight of testes and epididymis. Though the weight of other accessory sex organs was increased.

The local irradiation significantly increased the teticular alkaline phosphatase content and the gonadotropin administration to these animals reduced it markedly. However the indigenous drugs did not affect the increased alkaline phosphatase activity in irradiated animals. The Alkaline Phosphatase activity is known to be increased following testicular degeneration (Bacq. Z.M. and Alexendra. P., 1961).

Following irradiation varied degenerative features were seen in testes which include distortion of seminiferous tubules, marked reduction in nonnal cell population, vacuoliasation, appearance of gaint cells. (Fogg and Cowing 1954, Oakberg and Diamano 1955). The gonadotropin administration showed considerable regenerative changes in these animals. As a result the seminiferous tubules apeard to have regained normal architecture and proliferating spermatogonial cells were seen. However, *Mucuna pruriens* and *Asparagus racemoses* did not improve the morphological picture after irradiation and as such no regenerative changes were seen in these animals. Histochemically the testicular lipid contents were markedly increased following irradiation. (Lacy, 1960, Pokrovaskie, 1963). On the contrary the gonadotropin administration significantly reduced the lipid depots. The indigenous drugs *Mucuna pruriens* and *Asparagus racemoses* did not affect the testicular lipid contents of irradiated animals.

Clinical Study

The clinical study was carried out in 40 proved cases of azoospermia and oligospermia. These cases were treated with *Mucuna pruriens* and *Asparagus racemoses* for 3 months. The evaluation was done on the basis of detailed history, seminal examination, seminal, fructose, urinary 17-ketosteroid, urinary testosterone levels and testicular biopsy. All the aboe investigations were carried out prior to start the treatment and were repeated at monthly intervals. In all these cases the secondary sexual characters were well developed and there was no evidence of androgen deficiency. In the present series a high incidence of small pox (40%) was recorded in these cases. The seminal fructose, urinary 17-ketosteroid and urinary testosterone levels wee found witin normal limits.

Following treatment with indigenous drugs, no change in volume, pH and sperm count was observed in cases of azoospermia. Similarly the oligospermic

patients also did not show any significant change in pH, sperm count and motility. However, the cases treated with *Asparagus racemosus* exhibited a significant increase in seminal fructose levels and ejaculate volume.

Mucuna pruriens treatment did not change the fructose levels in cases of Azoospermia or oligospermia. However *Asparagus racemosus* administration increased the fructose levels in cases of oligospermia only. Although levels remained within normal range. The administration of *mucuna pruriens* and *Asparagus racemosus* did not influence the urinary 17-ketosteroid levels. All cases treated with above drugs expressed that their sexual desire and retention power were increased.

Thus from the present study it could be concluded that *Mucuna pruriens* and *Asparagus racemosus* possess some anabolising and aphrodisiac effect. Though the later was more pronounced in *mucuna pruriens* treated cases. However, these drugs do not seem to have regenerative or spermatogenic effect.

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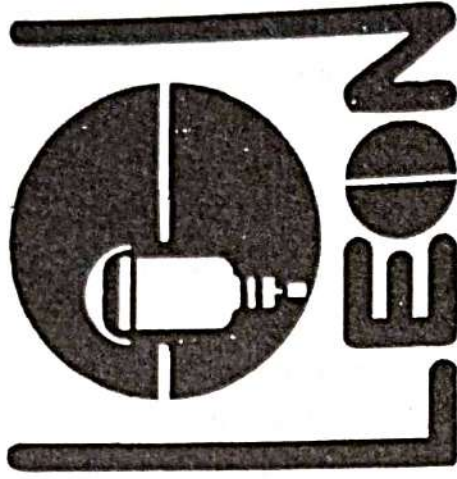
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Importance of Ahar, Vihar and Aushadhi Yojna in Garbhini (Garbhini-Paricharya)

SINHA MUKTA*

In ayurvedic classics the importance of pregnancy care is given in details. All authors have described Aahar Vihar and Aushadhi Yojana in detail for pregnant women. The importance of Garbhini care or precaution is said by Charak as:

व्याधीश्चास्या मृदुमधुरशिशिरसुखसूकामुरप्रायौरौषधहारोपचौरूपचरेत् न चास्या वमनविरेचनशिरेविरेमनानि प्रजोजयेत्, न रक्तमवसेचयेत्, समकालं च नास्थापनमनवासनं वा कुर्यादन्यत्रात्ययिकाद्व्याधेः। अष्टमं मासमुपादाय वमनादिसाध्येषु पुनर्विकारेष्वात्ययिकेषु मृदुभिर्वमनादिभिस्तदर्थकारिभिर्वोपचारः स्यात्। पूर्णमिव तैलपात्रसंशेभयताक्षऽन्तली भवत्युपचर्या। च.शा. ८/२२, पूर्णमिव तैलपात्रसंशोभचद्गर्भिणीमुपाचरेदिति अ.सं.शा. २/६२

The pregnant should be treated just like a pot filled with oil as slightest oscillation of such pot causes spilling of oil, similarly slight excitement to the pregnant women can initiate abortion etc.

Thus the classics advice to treat the diseases occurring in pregnant lady by using gentle, sweet and cold drugs and dietetics and behaviour which are congenial to the foetus rather than other harsh method of treatment.

Harita has advised use of Vatsak and Pippali, Sunthi and fruit of amalaki unripe fruit of bilva mixed with curd and sugar as always beneficial.

The ante natal care (Garbhini Paricharya) is for the mental and physical well being of expecting mother and her offspring and the care can be divided as –

1. Before marriage
2. After marriage
3. After conception

So here an effort has been made to review the drugs and probable mode of action on fetus and pregnant lady, when used during A.N.C.

Ayurveda advocates use of guru, snigdha, mridu, laghu and sheet dravya, having madhur, kasaya, tikta rasa and common properties like poshan and Balyakar. In case of pregnant lady, if the diet is normal, she gains considerable amount of weight from fourth to seventh month. The decrease in the working capacity is due to increased abdominal pressure and reduction in haemoglobin concentration due to hydraemia might have been referred as loss of strength and blood respectively.

* Lecturer, Department of Prasuti Tantra, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

Congenial diet which is auspicious pious should be taken very 1st day of pregnancy, thus brimhan therapy and drugs of Jeevaniya group should be used, along with hot water milk and meat also. Milk & Meat provide nourishment and stability to the foetus and specially meat also suppresses vata of pregnant women. (K.S. Khil 24/6,7,11).

Month - wise Dietary Regimen for Pregnant Woman (Garbhini Ka Masanumasik Pathaya)

Ist 12 days	Milk medicated with Shaliparni and Palash with water as Anupan which is boiled with gold and silver then cooled.
Ist Month	Medicated/Nonmedicated milk, sweet cold and liquid diet massage and rubbing of unguent should be avoided. Madhuyashti, Parushak, Madhuka Pushpa should be taken with butter and honey followed by sweetened milk.
IInd	Milk medicated with Madhura drugs, sweet cold and liquid diet. Sweetened milk treated with Kakoli.
IIIrd	Milk with honey and ghrita, sweet cold and liquid diet specially cooked shasthi rice with milk, Krishra prepared with (oil and rice + Pulse).
IVth	Milk of butter, Shasti rice with curd medicated cooked rice.
Vth	Ghrit with butter, cooked shasti rice with milk meat of wild animal mixed with milk and ghrita, yavagu, payasa (rice cooked with milk and sweetend).
VIth	Ghrita medicated with Madhura group, Ghrita or rice gruel/medicated with Gokshru, sweetened group.
VIIth	Ghrit with prithak parni or vidarigandhadi group Ghrit Khanda.
VIIIth	Rice gruel prepared by milk and mixed with ghrita. Aasthapan basti (clearing the retain faeces and anuloman of vayu), Anuvasan basti, (Retention enema) unctuous gruel and meat soup of wild animal.
IXth	Anuvasan basti with oil + Madhur group as in eight month, vaginal tampon of medicated oil for lubrication of Garbhasthan and Garbha Marg. Meat soup with cooked rice and fat. Rice gruel with fat.
Xth	In IX & X month different variety of cereals, Anuvasan Basti with Kadamba oil. Gruel with Ghrita.

Special bath with decoction used by pregnant women. The cold decoction of bilva, Karpas, Phamphana (Sarval) Patli (Petals of rose flowers) Pichumanda, Agnimantha, Jatamansi, leaves of Eranda or the water prepared with Sarvogandha (All fragranet) Vag I and Vag II has advised use of cold decoction of leaves of drugs capable of suppressing vata.

Importance of Monthly Regimen

By the use of this regimen from 1st to 9th months her *garbhdharini* (uterus). Kukshi (abdominal) sacral region flanks and back become soft, *vayu* moves in its right path, faeces urine and placenta are excreted easily (A.S.) women gains strength and complexion, she delivers easily excellent healthy child possessing all the quality and long life. In short we can say diet taken by pregnant women serve three purposes:

1. Nourishment of her own body.
2. Nourishment of foetus.
3. Nourishment of Breast or formation of milk.

Monthly regimen are helpful in requirement of mother and foetus from 1st to 9th month and pregnancy related minor ailment can be prevented like nausea vomiting oedema etc.

Table 1. Aahar, Vihar and Aushadhi Yojana in Pregnancy.

Ahar	Vihar	Anshadhi
Congenial diet	Good conduct	Jeavaniya varga Aushadhi
Hot water	High spirit	Kadali
Milk	Pious	Amla
Meat soup	Decorated with ornaments	Draksha Products of Amla and Madhura Rasa
Shali Dhan	New Clothes	Sheetala products
Shastik Dhan	Auspicious deeds and worship	Kasturi
Mudaga	Garland	Chandan
Lajja ka sattv		Karpoorointment
Navneet		Santarpan Janya Padartha
Ghrit	Chandan snana (bath)	Lakshadi Tail Snehan
Madhu	Abhayanga	Phala ghrita - Paan
Sharkara	Mridu Shaiya (soft mattress)	Deepaniya Dravya
	Sheetala vayuka sewan	
	Sarvagandhodakbath	
	Trivrita amulent (Mani)	

Ist trimester: Use of cold and sweet diet prevent Nausea vomiting dehydration and supply required nourishment and the drugs of Madhur group being anabolic will help in maintenance of proper health of mother and foetus.

Table 2A. Management of Aasanna Prasava (Onset of Labour).

Aahar	Vihar	Ausadhi
Strength producing rice gruel	Soft cushion spread over ground (C) soft bed having pillow sleep in supine position with flexed thigh (S) cushion covered with skin of red bull	Inhalation of Drugs use power of Kustha, Ela, langli, Vacha, Chavya with Chitraka and Chirbilva and Chirbilva (any one or all together) Intermittent inhalation of smoke of - Bhurja - patra, Shinshipa, Sarja rasa in between uterine contraction.
	Encouraging her with consoling and pleasant words (c) and delight the woman (K).	
	Encircled with kumary, fruit with bearing masculine	
	Name(s) vagbhat contradict presence of kumar	
	Massage oil, bath with luke warm water(s) lukewarm.	
	Oil over flanks, thighs, back, sacrum (A.S.), over infra umbilical region (A.H.) to avoid aggravation of vata and expulsion of foetus (Arundutta) Oil massaged all around vaginal canal (B.P.)	
	Attended by mature and expert woman (four in number) (s) having their nails cut (s) four woman all friends (Bhela) Hymn - Kautuk-Mangal (V).	
	Yawning and slow walking (A.H.) Recitation of Mantras by Brahman, recite Prajapati for economic and religion achievement (K)	

Table 2B. Management in Case of Failure in Descent of Foetus.

Vihar	Aushadhi
Holding pestle or any other heavy things strike on the paddy	Inhalation of kustha, ela, langali, vacha chitrak, chirbilva, chavya
Atreya contra indicted it because all the dhatus and doshas are excited	Inhalation of smoke of Bhruja patra, resin of Shinshipn (C) Guggulu (K), Nameru
Yawning and walking	Use Ishad ushan oil (lukewarm) on waist, flanks, thigh, back Use of wine for weak woman but Kashyap says only use gruel (rice) boiled red shali rice mixed with sour drinks (kanji) or cow's urine or with decoction of danti, Dravanti, vrishakali, punarnava or Banatikta

Table 3. Pharmaco-dynamic properties of – Drugs used in Ante-Natal Care.

Name	Rasa	Guna	Virya	Vipaka
Kathala	Madhura Kasaya	Snigdha Guru	Sheeta	Madhur
Amala	Panch rasa (except Amla)	Guru Ruksha Sheets	Sheeta	Madhur
Draksha	Madhur	Snigdha Guru, Mridu	Sheeta	Madhur
Madhuyashti	Madhur	Guru Snigdha	Sheeta	Madhur
Madhuka	Madhur kashaya	Guru Snigdha	Sheeta	Madhur
Shaliparni	Madhur Tikta	Guru Snigdha	Ushna	Madhur
Gokshur	Madhur	Guru Snigdha	Sheeta	Madhur
Prithaka parni	Madhur Tikta	Laghu Snigdha	Ushna	Madhur
Kadliphala	Madhur	Sheeta	Sheeta	Madhur
Jatamansi	Tikta, Kasaya Madhur	Laghu Snigdha	Sheeta	Katu

IInd trimester: Meat soup provide more protein for muscular tissue of foetus – use of Gokshura – good diuretic prevent retention of water. Drug like Vidarigandhadi diuretics and anabolic, relive emaciation.

IIIrd trimester: Use of Basti - relieves constipation. Affects A.N.S. governing myometrium and helps in Regulating their function during labour.

Tampoon of medicated oil - destroys pathogenic bacteria of vaginal canal. Prevents puerperal sepsis. Softener vaginal canal helps in normal labour. Milk and drug of Madhur group are beneficial in entire pregnancy period.

So in Short the Aahar, Vihar and Aushadhi Yojna is given.

Use of Aahar, Vihar and Aushadhi Yojana during Intra Partum - in Table 2

Hence the above table of these drugs, used in Ante-natal period are having properties like-Guru, Snigdha, Mridu and Laghu Guna, Sheet Veerya and Madhur-vipak with Madhur, Tikta and Kashaya Rasa. Thus due to these properties all drugs have Balya, Poshan, and Brimhan properties which are helpful in whole Ante-natal period for both mother and child. So the aim of management of ante-natal is fulfilled because nourishment of foetus and mother and proper development of child takes places.

Vagbhatta I

Praja-sthapan drugs can be used after Punsawan Karma. Acharya kashyapa has advised, use these drugs regularly is beneficial for the development of foetus and beneficial for mother health. These drugs having Tikta, Madhur, Kashaya, Panch Rasa, Laghu, Guru, Ruksha, Snigdha, Pichhil - Guna mostly Picchil Sheeta veerya only some drugs have Ushna-veerya, and Katu or Madhur vipak. The actions of these drugs are Praja sthapak, due to Madhur Guna and Sheeta Veerya and also having Stanya Janan and Stanya Shodhak properties. Due to ushnaveerya they are garbhashaya Shothahar.

During Intrapartum

Most of the drugs have - Laghu Rukshna and Teekshana Guna, tikta katu rasa and ushna veerya and katu vipak. So during labour these drugs maintain the Aapan vayu in correct path and help in expulsion of foetus normally. These drugs have irritant action and acts to stimulate 'mal' for expulsion.

Conclusion

Thus at the last we can conclude that if the lady follows these antenatal regime woman remains healthy and delivers the child possessing good health by the use of this regime from first to nine months, by application of Basti & Pichu, abdomen, vaginal canal, flanks become soft, and vayu moves in the right direction - faeces, urine, placenta are excreted easily. Woman gains strength and complexion and she delivers easily at proper time.

Table 4. Pharmacodynamic Properties of Garbhastaphaka drugs.

Name	Rasa	Guna	Veerya	Vipaka	Action
Andri (Bacopa Monnieri)	Tikta	Laghu	Ushna	Katu	Kaphavata Shamaka, Prajasthapak
Brahmi (Centella asiatica)	Tikta	Laghu	Sheeta	Madhur	Due to Madhur and Sheeta stanyajanan, Stanya shodhan
Shatveerya (Asparegus racemosus)	Madhur	Guru	Sheeta	Madhur	Shukral, Garbhaposhakha, Stanyajanan
Sahasraverya (Cynodon dactylon)	Kashya Madhur	Laghu	Sheeta	Madhur	Prajasthapaka
Amogha (Sterospermums saveloens)	Tikta Kashaya	Ruksha Laghu	Ushna	Madhur	Prajasthapan, Vrishya, Garbhashaya, Shothahar
Avyatha (Kadli, Guduchi, Haritiki)	Pancharasa Kashaya Pradhan	Laghu Ruksha	Ushna	Madhur	Prajasthapan, Vrishya, Garbhashya, Shothahar
Shiva (Terminalia chebula)	Kashaya Pradhan pancharasa except Lavana	Laghu Ruksha	Ushna	Madhur	Praja Sthapaka
Aristha (Picrorhiza Kurroa)	Tikta	Ruksha Laghu	Sheeta	Katu	Stanya Shodhan
Vishvaksen kanta (Priyangu)	Tikta Kashaya Madhur	Guru Ruksha	Sheeta	Katu	
Vatyapushpi (Abutilon indicum)	Madhur	Laghu Snigdha Picchil	Sheeta	Madhur	Prajasthap or Garbha Poshaka
Nagbala-Mahabala (Sidarhombifolea)	All properties of Bala				Garbha Poshaka Garbha Poshaka
Varahikand (Dioscorea bulbiefera)	Katu Tikta Madhur	Laghu Snigdha	Ushna	Katu	Rasayan, Vajikaran, Balya

Pharmaco-dynamic properties of Drugs used in Intra Partum

Name	Rasa	Guna	Virya	Vipaka
Kustha	Tikta, Katu Madhur	Laghu, Rukshan Teekshan	Ushna	Katu
Ela	Katu, Madhur	Laghu, Ruksha	Sheeta	Madhur
Vacha	Tikta, Katu	Laghu, Teekshna	Ushna	Katu
Langli	Tikta, Katu	Laghu, Teekshna	Ushna	Katu
Bhurja Patra	Kashaya	Laghu	Ushna	Katu
Guggulu	Tikta, Katu		Ushna	Katu
		Old: :Laghu, Rukshna Teekshna, Vishad Sar, Sukshma Sugandhi		
		New: Snigdha, Picchila		
Chitraka	Katu	Laghu, Ruksha Teekshna	Ushna	Katu
Chir Bilva	Tikta, Kasaya	Laghu Ruksha	Ushna	Katu
Chavya	Katu	Laghu Ruksha	Ushna	Katu
Shinshapa	Tikta Katu, Kashaya	Laghu Ruksha	Ushna	Katu
Danti	Katu	Guru, Teekshana	Ushna	Katu
Dravanti	Katu	Guru, Ruksha Teekshana	Ushna	Katu
Punarnava	Tikta Kasaya Madhur	Laghu, Ruksha	Ushna	Madhur
Sunthi	Katu	Laghu, Snigdha	Ushna	Madhur
Sarsapa	Tikta, Katu	Ruksha, Teekshna	Ushna	Katu
Vasa	Tikta, Kashaya	Laghu, Ruksha	Sheeta	Katu

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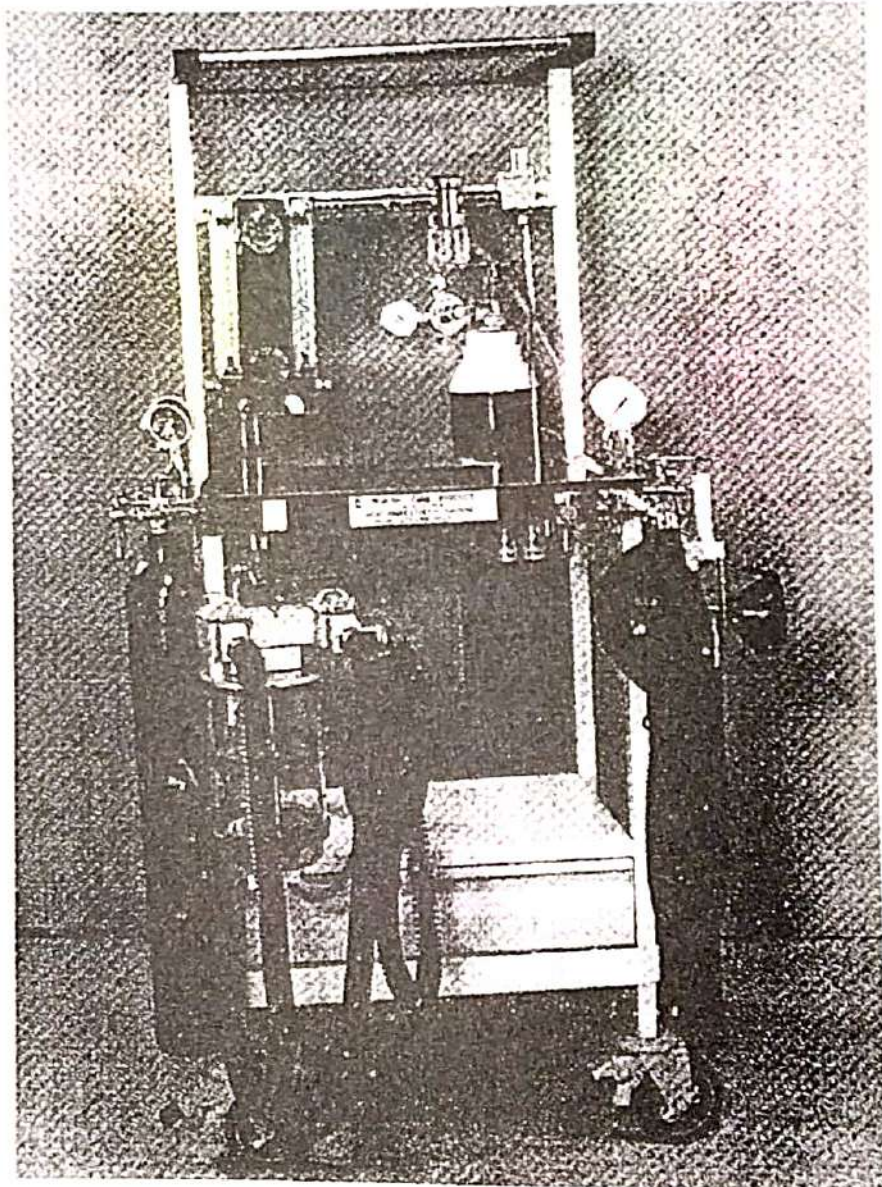
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An overview to Biofeedback procedure and its application in clinical medicine

AGRAWAL ARUNA*

Biofeedback device is now considered as one of the important tool for psychophysiological self-regulation. This procedure is an immediate presentation of informations to a person about his or her own psychological process such as brain wave, pulse rate, blood pressure, temperature and muscle tension. The biofeedback training may be used to gain information regarding voluntary control of involuntary system.

Since last few decades several studies have indicated the beneficial effects of a new kind of management strategy for a variety of clinical conditions particularly associated with anxiety and stress is known as Biofeedback training. Recently the regulation of physiological responses with the help of biofeedback procedures have attracted the attention of investigators. It is now possible to modify the complex neuroendocrine process by such remedial measures. Many medical scientists have shown the possibility of using biofeedback methods for self-regulation and voluntary control of autonomic nervous system. Although there have been several informations of learned voluntary control in man but the mechanism of such change could not be understood properly. Adequate understanding of neurophysiological processes requires consideration of the complex system of interacting mechanisms and controlling the involuntary systems. The sympathetic adrenergic system plays a major role in the modulation of blood pressure levels.

In the recent past a great deal of attention has been directed towards the study of modification of neuroendocrine process by activation of electro-cortical activities alongwith neuroendocrine changes. The possibility of using biofeedback procedures to modify the emotional reactions caused due to anxiety and stress has been defined in several clinical studies.

In cases of psychosomatic disorders like anxiety neurosis, essential hypertension, early thyrotoxicosis, bronchial asthma, irritable bowel syndrome, coronary heart disease etc. the biofeedback procedures are used most frequently to induce a general state of relaxation. The clinical significance of biofeedback therapy especially in tension headache, chronic anxiety, insomnia and essential hypertension has indicated its remarkable beneficial role. it has been point out that heart rate changes appeared to be associated with changes in perception of the unpleasant stimulus. The meditation and relaxation practices are now being used in a number of clinical studies to achieve regulation of blood pressure in anxiety, stress and associated disorders.

A study of cardiovascular response to stress is coupled with rapid advancement in the field of neuroendocrinology. Several studies have provided systematic experimental analysis of interacting cardiovascular behavioural processes, which

*Lecturer, Department of Basic Principles, I.M.S., B.H.U., Varanasi – 221 005

define psychophysiological aspect of anxiety, stress and emotional arousal. Although several informations have been reported regarding the voluntary control of cardiovascular system but only scattered informations are available concerning the mechanism of such psychophysiological modifications. Though there is no direct evidence that EEG biofeedback have a definite role in the regulation of neuroendocrine functions. As it is well-established fact that various hormones regulates the human behaviour. But the neuroendocrine system be influenced by controlling thought process during feedback treatment.

The transcendental meditation and relaxation process showed significant change in systolic and diastolic blood pressure level. According to Benron the pioneer scientist in this field advocated that this is only possible in borderline hypertension cases. A similar observation was carried out by many other workers also. These worker reported that meditation produced small but significant reduction in blood pressure, which wee accompanied by reduction in plasma dopamine-beta-hydroxylase activity.

Acetylcholine and plasma cortisol both have shown significant reduction after autogenic self regulation practices in certain psychosomatic disorders, proven by Udupa K.N. et al in one of the studies. The analysis of post biofeedback subjective reports replicated and extended the further researches in the field. In one of the trials conducted with the-subjects, who were given E.E.G. feedback treatment showed considerable improvement in nervousness, tension and anxiety. It is well-established fact that in all stressful situations there is an alteration in almost all the neuroendocrine functions. Any procedure which may demonstrate the voluntary control of involuntary system may provide useful information for the interpretation of psychological regulation of complex neuroendocrine processes. Though it is apparent that our present stae of knowledge of E.E.G. correlates in relation to neuroendocrine process is quite limited. Therefore the significance of clinical application of biofeedback therapy depends very much on knowledge on what specific neurophysiological responses are patterns of response, related with particular clinical symptoms.

The mechanism of cardiovascular response following biofeedback therapy may be understood by correlating neuroendocrine changes following therapy. It is reported that E.E.G. feedback causes marked physiological changes like reduction in muscle tension, more alpha experiences and an increase of skin temperature. Reduction and regulation of heart rate, regulation of vaso-motor activity and blood flow are also the obtained results of such autogenic self-regulation techniques without any adverse effect.

In brief the effect of biofeedback procedure on neuroendocrine system seem to be promising. There should be a serious attempt to correlate the various assessments like brain frequencies with the status of neurotransmitters, endocrine and psychic status of the individual.

Role of Rasayan in Pregnancy and Lactation with Special Reference to Panchamahabuta

SINGH RANI*, SINGH LAKSHMAN**, SINGH I.P.†

Ayurveda, the science of life does not deal with the therapeutics only, but other parts and principles of life. *Rasayan* which is one of the important branch of *Ashtang Ayurveda* deals with the way or method to obtain (prashasta) the excellent quality and quantity of different *dhatu* (*Rasa, Rakta, Mamsa, Meda, Asthi* and *shukra*) by means of diet, drugs, life style and behaviour. This helps in prevention and treatment of disease and promotion of health by enhancing immunity of the body, which is also called "Oja" in *Ayurveda*, so it has multi-dimensional approach which is the aim and objective of Ayurveda.

Qualities/Importance of Rasayans

- It maintains health by increasing anabolic and decreasing catabolic processes of body.
- It increases immunity of the body against many diseases by increasing immunoglobulin level in the blood.
- It increases longevity of life preventing degenerative process.
- They act as anti-oxidant and reduce free radical formation.
- It increases Micro circulation, which helps in tissue repair and regeneration.
- They enhance memory and intellectual competence.
- They also remove the waste product from the body.
- They also improve mental status if practiced as Acharya Rasayana.

Mechanism of Action

The word *Rasayana* is made by two words '*rasa*' and '*ayan*'. The word *Rasa* has so many meanings in Ayurvedic literature, but here the word *rasa* means the nourishing fluid product produced after digestion of food and get mixed with plasma after absorption. *Ayan* means movement or circulation. So the word '*rasayan*' means the circulation of nutritive substances to different body tissue (*dhatu*) for nourishing them and obtaining good quality of all tissues. As the Ayurvedic drugs acts by different qualities, as some act by their *rasa* some by *gunas*, some by *virya* (potency of the drug), some by *vipak*, and some by *prabhav*. The *Rasayan* drugs also act in similar way at the following levels.

* Jr.-III, Department of Basic Principles

** Lecturer, Department of Shalya Shalakyas

† Reader, Department of Basic Principles

Institute of Medical Sciences, Banaras Hindu University, Varanasi.

- At the level of 'rasa'. Some drugs like 'Shatavari' 'dugdh' 'grithi' etc., they increase the nutrient quality and quantity of the rasa and directly improve the tissue nourishment showing their rasayan effect.
- At the level of 'agni'. Some drugs like 'bhallatak' and 'pippali' they act at the level of 'dhatvagni' and 'bhutagni' by increasing metabolic activities of different 'dhatus'.
- At the level of 'Srotas'. Some drugs like 'guggul' they act at the level of 'srotas' by increasing microcirculation and tissue perfusion. The other reason for this type of action of rasayan drug is that most of them are treated with ghrith (ghee) or oil which increased the permeability of cellular membrane as it is formed by different types of fat.
- The Achar Rasayan act at the level of psyche (manas).

Types of Rasayans

1. 'Ajasrika rasayan'. The rasayan which can be used daily as diet with all six rasas, ghee, milk etc.,
2. 'Nemittik Rasayan' These are used for the quick and better relief of disease like 'Arjun and Shilajit'.
3. 'Kamya Rasayan'. To promote health and vitality.
4. 'Medhya Rasayan'. They increase mental capacity in form of memory and intellect like 'vacha' 'shankha pushpi' 'brahmi' etc.,
5. 'Achar rasayan'. It includes 'Satvrit' 'Swasthyavrit' and 'yoga'. Satvrit means good conduct of life with spiritual thoughts. This improves psycho-physiological and psycho-spiritual health of an individual. It includes moral and religious conducts like speaking truth, free from anger, compassion, peace, and control of sensual pleasure good social behaviour, family co operation etc., 'Swasthavrit' means physical cleanliness, control of urges, proper diet, avoiding excessive eating and physical exercises beneficial for health. "Yoga" means control of mental modification.

Theory of Panchamahabhuta Akash, Vayu, Agni, Jala and Prithvi is undisputed and is unanimously accepted by the all philosophical systems of India and Ayurveda. The theory of panchamahabhuta has been propounded after a prolonged critical observations of the characteristics and behaviour of gross bhutas. Properties of physical objects and correlation of senses with the matter of environment. The concept of "lok purush samya" is also based on this theory. In words of Acharya Sushruta is medical science "physician need not to think about anything other than Panchamahabhuta" the concept is authentic and valid even today in the light of modern science, the impact of panchamahabhuta in Shukra (seman/sex hormone) and Shonit (ovum) formation fertilization, differentiation and development of embryo, parts derived from them, bhautic composition of body, nutrition of mother and fetus

by panchbhutic food is well described in *Ayurveda* according to their *Guna* and *Karmas*.

While describing rasayans a great emphasis is given on longevity, immunity, memory and intellectual but very little with the pregnancy. In *Garbhini paricharya* in *Ayurveda*, milk, medicated ghee, butter and meat are advised to obtain good nutrition for both which can be considered as *Ajsrik rasayan* along with good conduct (*Achar rasayan*) of mother.

Child bearing and birth are the important events in woman's life. So the responsibilities of family member, medical personale and society get increased at this stage. Of course this is a physiological phenomenon but the *Panchabhautic* physiological derangement occurs during this stage, that is why the whole obstetrics and Paediatrics has been described under *rachana shareer* by *Acharya Sushruta*. Keeping this view in mind *Acharya Vagbhatta* has given a great importance to the woman and said, "Women is the root of progeny which bears all responsibilities and pains from conception to the maturity of her progeny. So she should be protected in all respects." Even it is said in *Ayurveda* that the unwholesome should be provide along with wholesome to the mother at the time of *Dauhridya* (filling of two heart) or time of quickening to avoid any harmful effect of mother's desire on her progeny as many deficiencies cause congenital anomalies as neural tube defect and cardiac a defect etc., it has been proved by several by several studies.

Matrijadi Shadgarbhakarbhava (6 major components of embryogenesis) *Matrij* (maternal), *Pitrija* (paternal), *Rasaj* (nutritional) *Satmyaj* (suitable or whole some), *Atmaj* (conscious entity) and *Satvaj* (the psychic entity) all six components are very intricately associated with the growth and development of fetus during intrauterine life or even before conception. The *Garbha* (embryo) is influenced by all six components through their adverse and beneficial effects. Out of the six bhavas, four are concerned with the mother, as *matrij*, *rasaj*, *satvaj*, *satmyaj*. All these six bhavas act through the panchmahabhutas, as in *Ayurveda* there is nothing to think other than panchmahabhutas.

Matrija bhavas (character derived from mother) includes skin, blood, fat, muscles, all soft organs like liver spleen and heart, whole GI tract, urinary system, Omentam and Uterus etc. All these structures are derived from mother is described in all texts of *Ayurveda*.

The concept of mitochondrial genome is new about one decade old also support this view as it has been proved by various workers that the neuromuscular disease are caused due to mutation in mitochondrial genome which is derived from the mother only as the fertilized ovum contain only mothers mitochondria. So the characters which are governed by mitochondrial genome are derived from the

mother only in any offspring according to mitochondrial genomic theory. So the mother's character influenced the baby upto the great extent. Out of all the maternal influences, the anthropometric and biochemical nutrition parameters have attracted the attention of most scientific workers in the recent years. This indicates that mother has great importance in the formation of different body parts or features of her progeny. So the great emphasis has been given in all medical systems on the maternal health and its impact on her progeny.

Satvaja bhava are related with the psychological status of pregnant woman which effect her progeny if she remain in stress or stress during preconceptional, conceptional and antenatal period it effect the psychological, physical and physiological constitution of the coming new born baby. To prevent all these, methods have been described in all medical systems.

Keeping these views in mind it is thought that rasayan can play important role during pregnancy and lactation. Phala ghrit or triphala ghrit is described by Acharya Sarangdhar in contexts of infertility is having good results in pregnancy also, it has been proved by some workers.

Madhya rasayanas can produce beneficial effect on developing embryo if used in early months because the brain and other organs formation take place during this period. They can prevent malformation like anencephaly, meningocoel mental retardation and other nervous system disease. They promote intelligence, intellectual, memory, learning efficacy and development of a good quality of brain. Few ailments which generally occurs in pregnancy and need not any specific treatment like vomiting, nausea and general weakness in early months, anemia, edema, acidity backache and mild pains in later months can relieved by the use of rasayanas only. Few drugs having *madhur rasa*, *amalaki* and *gokshura* etc., as also been described by ancient Acharyas in *Garbhini paricharya*. So in normal pregnancy and lactation use of rasayana will be better than other drugs like iron and calcium which are generally prescribed by all obstetrician in ANC period and after delivery (lactation) as they causes gastritis, diarrhea and constipation etc., can be minimized by the use of rasayana. Rasayana are nutritive and *tridoshas shamak* specially the vata, may produced beneficial effect on both (mother and baby). A single ingredient of rasayan contain many qualities e.g., *Amalaki* in *triphalaghrit* is rich in vitamin C, Iron, Carbohydrate etc., *pitta shamak* due to *sheeta virya* and *madhura vipaka*, rasayana by karma. Similarly the other ingredients like *Haritaki* and *Vibhitaka* etc. also. So different rasayanas can be used in during pregnancy but their safety should be explained by experimental methods as most of the drugs are contraindicated in first trimester of pregnancy due to the risk of teratogenisity according to modern medical science. On the other hand one drug which is beneficial of one system may be harmful for the other.

So keeping the above view in mind regarding effect of rasayana, *Garbhini paricharya* and *panchamahabhuta* it may be concluded that the *rasayanas* can be used during pregnancy and lactation to keep the mother and baby body fit by increasing immunity and making the equilibrium state of *panchamahabhutas* or *tridoshas* which are deranged during this period. According to the modern science, the hormones and enzymes are considered responsible for these changes, which can be corrected by the use of Rasayana as they possess the quality of enhancement of immunity, doshik equilibrium, intelligence, intellectual memory etc. and tranquilizing effect (Madhya drug) as the woman get disturbed psychologically due to so many circumstances of family and society. So rasayanas should be practiced during this period due to their multi-dimensional (role) effects.

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The Garbhopenisad – A Source of Sharira

SONKAR ASHOK KUMAR*

The Vedic literature is divided into four sections and they are viz., *Samhita*, *Brahmana*, *Aranyaka* and *upanisad*, the compendia (*Samhitas*) are four known as *Rigveda*, *Yajurveda*, *Samaveda* and *Atharvaveda*. All four *samhitas* have its one *Brahmanas*, *Aranyakas* and *Upanisads*. The present *Garbhopenisad* belongs to the *Atharvaveda*. The period of this *Upanisad* is assigned to be 1000 B.C.

This is a very minor *Upanisad* comprising five hymns (*mantras*) only but every *mantra* is very long in comparison to the *mantras* of *Rig*, *Yajus* and *Sama*. This *Upanisad*, at the outset, starts with an introduction and definition of body (*sharir*):

पंचात्मकं पंचसु वर्तमानं षडाश्रयं सद्गुणयोगयुक्तम् ।

तं सप्तधातुं त्रिमलं द्वियोनिम् चतुर्विधाऽऽहारमयं शरीरम् ॥

The subject material of *Sharir Shastra* is engulfed in the aforesaid passage of *Mantra* and every term has been defined by the *Upanisad* itself. We shall elaborate every term, one by one, for sketching out a primitive picture of the development of *Rachana* and *Kriya Sharir*. Alike our *Ayurvedic* compendia (*Charak*, *Sushruta* and *Vagbhata*), there was not existed separate entity of *Anatomy* and *Physiology*.

The ensuing line of the passage of *Mantra* raises the question about the technical term '*panchatmaka*' (*panchatmakam iti kasmal*) and it further enumerates the five (basic element in reverse order) as *Prithvi*, *Ap*, *Tejas*, *Vayu* and *Akasha*. It further puts the queries regarding the entity of five in the body itself.

The *upanisad*, answering all the questions about the characteristics of the five *Mahabhutas*, elucidates stating that whatever is hard (*kathina*) in the body, that is the *Prithvi*; natural liquidity (*drava*) is the *Ap*; hotness (*usna*) is the *Tejas*; mobility (*sancharatva*) is *Vayu* and whatever is porosity (*sushiratva*) that is *Akasha*. The *Charaka Samhita* (*Sharir*, IV. 29) and *Bhavaprakash* describe the prominent signs and characteristics of every *bhutas* but they are in a pair. It also differs in the context of *Vayu* and *Prithvi*. According to them, hardness and heaviness for *Prithvi*, liquidity for *Ap*, and it adds to it stickiness (*snigdhatva*) and coldness (*sheetatva*); hotness (*ushnatva*) and radiance (*tikshnatva*) for *Tejas*; mobility (*chalatva*) and dryness (*ruksata*) for *Vayu* and lastly non-resistance (*apratighata*) and lightness (*laghutva*) for *Akasha*. An addition of one additional property in each *bhuta* is a contribution of *Bhavamishra*. I quote here both the verses for clear understanding:

खर-द्रव-चलोष्णत्वं भूतलानिलतेजसाम् ।

आकाशस्याप्रतीघातो दृष्टं लिंगं यथाक्रमम् । (चरक, शरीर, १.२६)

*Lecturer in Tridosha Vijnana, Department of Basic Principles, I.M.S., B.H.U., Varanasi

लघु गुरुस्तथा सिग्धोरुस्तीक्ष्ण इति क्रमात् ।

नभो-भू-वारि-वातानां वह्नेरेते गुणाः स्मृताः ॥ (भाव प्रकाश)

The *Garbhopenisad* further explains the main action of the *Mahabhuta* after describing its main characteristics. It goes ahead stating that *Prithvi* is responsible in sustaining (*dharana*), *Apah* in cohesion (*pindidarana*); *Tejas* in lightning (*prakashane*); *Vayu* in distribution (*vyuhane*) and *Akasha* in providing the space (*avakasha pradane*).

The *Garbhopenisad* goes further to explain the another term-*panchasu vartamanam*. Location (*Vartmanam*) of *bhutas* in the sensory organs (*panchasu = jnanendriyesu*). *Akasha* is located in ears (*Srotre*) which is responsible in hearing the sound. *Vayu* is pervaded in skin and gives the tectile sensation (*sparsha*). *Tejas* is located in eyes (*chaksusi*) which is responsible for form (*rupa*); *Ap* is located in tongue and is responsible for taste (*rasa*) and *Prithvi* is located in nose and is responsible for smell (*gandha*). Among the motor-organs (*karmendryas*), this *upanisad* mentions only phallus (*upastha*) and anus (*guda*) which are responsible for voiding while phallus plays a great role in sexual intercourse and attains pleasure (*anandana*). One understands through intellect (*buddhi*) determination (*samkalpa*) through mind (*Manas*) and speaks through tongue.

Exposition of *sadasrayam*

The third term of this mantra is *Sadashraya* and again the query is made to define it. Answering the aforesaid question, *Upanisad* says that body is substratum (*ashraya*) of six tastes viz, Sweet (*madhura*), sour (*amla*), saline (*lavana*), pungent (*katu*), bitter (*tikta*) and astringent (*Kasaya*). An individual attains or relishes these six tastes.

Notes of the musical scale

The description of seven notes (*svara*) of music is followed by six tastes and they are *Nishada*, *Rishabha*, *Gandhara*, *Shadja*, *Madhyama*, *Dhaivata* and *Panchama*. According to musicians, these notes resemble respectively with the notes of elephant, bull, goat, peacock, curlew or heron, horse and cuckoo.

Along with are desired (*ista*) and undersized (*anista*) sounds accompanied with access (*paridhana*) and thus they become ten in number.

Further, it describes the seven colours (*varna*) and they are white (*shukla*), red (*rakta*), black (*Krishna*), grey (*dhumra*), yellow (*peeta*), brown (*kapila*) and pale white (*pandura*).

The second mantra (hymn) starts from the description of colour followed by the formation of seven *dhatu*s (main constituents of the body or seven body tissues). Here, it again puts the query regarding the formation of *dhatu*s. Answering to it, the

Upanisad narrates that from digested food, possessing the six tastes, the seven body tissues are formed. In sequence, in the body, viz., Rasa (nutrient fluid or chyle or plasma), Rakta (blood), Mamsa (muscle), Medas (fat), Asthi (bone), Majja (bone marrow) and Shukra (reproductive tissue).

It is a subject of great conjecture, that Upanisad wrongly exhibits the formation of Snayu (ligaments or hard fibrous structure), the subsidiary tissue (upadhatu) from the Medas and from Snayu to asthi. It does not mention the formation of Ojas as a final subtle and superfine essence of the last tissue (shukra) which manifests in our physical being as a sap of energy.

Embryology

In the end of this second Mantra, Emryology, which must be the main theme of the Garbhopenisad; it shows stating that union of sperm (shukra) and ovum (shonita) in the womb (hridi) is designated as embryo (garbha) and it is managed by the internal agni as agni is identical with Pitta. Agni and Vayu take essential part in the sustaining of Garbha. After the union of semen and ovum, it becomes Kalala (jelly form) in the first night (eka ratrositam kalalam bhavati). After seven days, it becomes Budbuda (onomat or bubble) after seven days (sapta ratrositam budbudam bhavati). During the first fortnight of gestation, the embryo takes a compact form in the shape of a knot (pinda). In the end of first month, it becomes hard (kathina). In the end of second month, head is manifested. In the third month, lower limbs (pada pradesha) are formed. During the fourth month, Maleoli (gulpha), abdomen (jathara), lion, lumbus or pelvis or waist (kati) are formed. During the fifth month, back bone, spine or vertebral column (Prishthavamsha) is formed. During the six month, mouth, nose, eyes and ears are manifested. During the seventh month, it is united with consciousness (jeeva). During the eighth month, all the parts of the body are completed. The embryo's sex depends upon the predominance of the shukra and ovum. If it is predominated by semen, it becomes male and in case there is predominance of ovum, it resulted as a female and if there is equal proportion of the both, it resulted in eunuch (napumsaka) on the state of disturbed mind (vyakulit manasa), the embryo resulted as Khanja (limping), Kubja (humped), and Vamana (dwarf). Twins (yugma) are formed in case there becomes division in both the united conceived part due to mis-movement of Vata.

Thus, this garbha when comes down on earth, becomes substantiated with all the faculties of knowledge.

Concept of Samkhya Philosophy

There are eight Prakritis (evolvents) viz., Prakriti (primordial), Mahan (intellect), Ahankara (ego) and five tanmatras (subtle five elements) and sixteen Vikaras (evolutes) which are senses of cognition and conation with mind (manas) along with

Panchamahabhutas and thus the evolutes become sixteen in number. When it takes the essence of food through his mother, its *Prana* (living energy) is increased (*apyayita*).

In the ninth month, equipped with all the characteristics and senses of knowledge, it takes the birth. It remembers the happening of past due to its *samskara*. Some times, it may remember the thousand of generations. He also remembers, an ingestion of various types of food wholesome eatables (*ashita*) and beverages and the tested breast milks even its birth and death. He also remembers its good and bad deeds performed in previous lives.

In the end of fifth *Mantra*, the body (*sharir*) has been defined. Style is the same as putting the question regarding its significance.

Definition of Sharir

The place where all the three *Agnis* inhabit (*ashrayante*) that is the *sharir* and three *Agnis* are *Jnanagni*, *Darshanagni* and *Jatharagni*.

According to *Charak*, the body which is maintained in the state of equilibrium represents the conglomeration of factors derived from the *Mahabhutas* and this is the site of manifestation of consciousness. When *Dhatus* in the body becomes discordant then there is destruction of the body.

Sheeryate iti shariram which is decayed continuously is *sharir* and it is defined by *Chakrapani*.

The *Koshthagni* (digestive secretions or the enzymes responsible for gastrointestinal digestion) digests the four types of food viz., *Ashita* (wholesome meal), *Peeta*, (beverages), *Leedha* (licked substances) and *Chosya* (suckable substances). *Darshanagni* (*Alochak Pitta*) is responsible for vision. Through *Jhanagni* (wisdom or *Sadhaka Pitta*), it performs good and bad deeds.

Agni in the body is located in three places and they are *Ahavaniya* (saliva and other digestive secretions) in mouth, *Garhapatya* (all the digestive secretions in G.I.T.) in abdomen and *Daksinagni* (*Sadhaka Pitta*) in heart.

Minor Anatomical contents

This *Upanisad* narrates 107 *Marmas*, 180 joints, 100 *Snayus*, seven hundred *Siras* 360 bones, 4 and half crore hair follicles. In the end there is measurement of some body contents which do not tally with *Ayurvedic* works.

Hridaya is 8 *Pala*, *Jihva* is of 12 *Palas*, *Pitta* 1 *Prastha*, *Kapha* 1 *Adhaka*, *Shukra* 1 *Kudava*, *Medas* 2 *Prasthas* but the quantity of Faeces and Urine is not mentioned.

In nut shell, it can be stated that the Physio-anatomical knowledge was persisted among the post-vedic people.

Acute Respiratory Distress Syndrome

PANDEY P.S.

Background

Though Ashbaugh first formally described adult respiratory distress syndrome, or acute respiratory distress syndrome, in 1967 in a case series of 12 patients, it had been recognized as a distinct entity prior to his report. However, he was the first to outline the characteristic defining features of this condition. He reported a clinical entity of dyspnea, cyanosis resistant to supplemental oxygen, and bilateral chest infiltrates on chest radiograph. In view of its apparent similarity to the recently described respiratory distress syndrome observed in newborns, it was termed adult respiratory distress syndrome (ARDS). An immense body of work has grown up around the study of this condition; however, until recently, a lack of diagnostic standardization confused efforts to accurately define the incidence and predisposing factors of this condition. In 1994, a European/North American consensus conference agreed on standard definitions of ARDS and a less severe illness, acute lung injury (ALI). The definition is based on (1) chest radiograph appearance, (2) the ratio of the partial pressure of oxygen in arterial blood to the percentage inhaled oxygen concentration, known as the $\text{PaO}_2/\text{FiO}_2$ ratio, and (3) assessment of the left atrial filling pressure, either by means of a wedged pulmonary artery catheter measurement or by clinical assessment. ARDS is considered to be present in the face of bilateral infiltrates on a chest radiograph, a $\text{PaO}_2/\text{FiO}_2$ less than 200, and a left atrial filling pressure less than 18 mm Hg or no clinical or radiological evidence of elevated left atrial pressure. ALI is defined similarly with the difference being that the $\text{PaO}_2/\text{FiO}_2$ is less than 300. Unlike earlier definitions of ARDS, the $\text{PaO}_2/\text{FiO}_2$ is defined regardless of the level of positive end expiratory pressure (PEEP).

Pathophysiology

The pathophysiology of ARDS is complex and multifaceted. It may be considered as 3 distinct components, which are the nature of the stimulus that initiates or causes ARDS, the host response to this stimulus, and, lastly, the role that iatrogenic damage plays in the progression and outcome of this condition.

An initiating stimulus leads to a cascade of effects, the most immediate of which is an increase in alveolar and pulmonary capillary permeability. Protein-rich fluid engulfs the alveolus, activated neutrophils and macrophages follow, and an inflammatory cascade is initiated involving the release of interleukins, tumor

necrosis factor, and other inflammatory mediators. Neutrophils release oxidants, leukotrienes, and various proteases. The net effect at a cellular level is massive cell damage, alveolar denudation, and sloughing of cell debris into the lumen of the alveolus. Furthermore, inactivation of surfactant is marked.

Meanwhile, in the pulmonary capillary, endothelial cells swell, platelets aggregate, and a procoagulant cascade may arise, leading to small vessel thrombosis. At a physiological level, the consequences of the reactions outlined above are myriad.

Surfactant depletion, alveolar flooding, cellular debris within the alveoli, and increased airway resistance all lead to increased work of breathing. Surfactant loss leads to alveolar collapse due to increased surface tension, analogous to the situation observed in premature infants suffering from infant respiratory distress syndrome. As alveoli collapse, closing lung volume decreases below functional residual capacity (FRC) further increasing work of breathing. This is reflected as reduced compliance, that is to say, more pressure is required to generate a unit volume. In addition, hypoxia, hypercarbia, and small vessel thrombosis combine to elevate pulmonary artery pressures, leading to increased right ventricular work, increased right ventricular filling, and, ultimately, a septal shift towards the left ventricle. This, in turn, may cause a decrease in cardiac output, which leads to further reduction in oxygen delivery to the tissues. Iatrogenic problems may complicate and exacerbate this picture. High-inspired oxygen concentration ($FiO_2 > 95\%$) may cause absorption atelectasis further reducing the number of patent alveoli. High mean airway pressures while attempting to maintain adequate oxygenation and ventilation may cause a further decrease in cardiac output.

Mortality/Morbidity

A true estimate of morbidity and mortality, naturally, is highly dependent on accurate definitions of ALI and ARDS. Nevertheless, published estimates vary for mortality arising from ARDS in both adult and pediatric populations. Studies dating from the early 1980s reported mortality ranging from 29-94% of affected children; however, the definition of ARDS was not standardized at this point.

Ventilator management has been given credence by the recent publication of a landmark study of ARDS in adults in which a tidal volume, permissive hypercapnia strategy was demonstrated to be efficacious in reducing mortality. The ARDS network group reported the results of a study that compared outcome in a group of patients with ARDS (as defined by the consensus criteria outlined above) treated with an initial tidal volume of 12 mL/kg and a plateau pressure (airway pressure

measured after a 0.5 second pause at the end of inspiration) less than 50 cm H₂O. The study group was treated with an initial tidal volume of 6 mL/kg and a plateau pressure less than or equal to 30 cm H₂O.

In conclusion, based on data from adult studies, one may postulate a mortality rate of 30-50% in children, depending on causative factors, ventilatory strategy, and numerous other variables. Morbidity resulting from ARDS may be divided into pulmonary and extrapulmonary morbidity. This distinction is somewhat artificial because increasing evidence exists that pulmonary injury, specifically VILI, and extrapulmonary injury are inextricably linked.

CLINICAL HISTORY

The history generally is remarkable for evidence of the precipitating event. The clinical picture often is clouded by the fact that comorbid pathologies, iatrogenic complications, and coexisting multiple organ system failure may be present.

Cough may be present, reflecting a primary lung injury, such as pneumonia or aspiration. Absence of a cough or gag reflex in a patient with symptoms and signs consistent with ARDS who had a witnessed episode of vomiting suggests that aspiration may have been the primary risk factor for the development of ARDS.

Dyspnea usually develops shortly after the initiating stimulus, becoming progressively more severe, which reflects increasing alveolar flooding and decreasing pulmonary compliance.

Physical: The evident physical signs primarily reflect lung pathology as well as other organ injury associated with the development of ARDS.

Tachypnea is an early sign as pulmonary edema develops, pulmonary compliance decreases, tidal volume decreases towards FRC and, thus, work of breathing increases.

Cyanosis may become apparent with increasing hypoxemia. Remembering that clinically evident cyanosis requires a certain minimum hemoglobin concentration be present is important, particularly in the trauma victim.

Fever may reflect the underlying process causing ARDS (eg, pneumonia, sepsis) or may reflect massive cytokine release.

Crackles may be audible throughout the lung fields signifying pulmonary edema.

Air leak syndromes: Physical signs of air leak syndromes may manifest in the latter stages of ARDS. These include pneumothoraces, pneumomediastinum, pneumopericardium, and subcutaneous emphysema. Features of a pneumothorax include decreased air entry on the side of the air leak, an increased percussion note on the same side, and tracheal deviation toward the side of collapse in a simple pneumothorax or toward the contralateral side in a tension pneumothorax. Heart sounds may be muffled, and signs of decreased cardiac output may be observed with a tension pneumothorax.

Causes: Multiple risk factors exist for the development of ARDS. Approximately 20% of patients with ARDS have no identified risk factor. Based on a number of adult studies, the major risk factors associated with the development of ARDS include the following: Bacteremia, Sepsis Trauma, with or without pulmonary contusion Fractures, particularly multiple fractures and long bone fractures Burns, Massive transfusion, Pneumonia, Aspiration, Drug overdose, Near drowning Postperfusion injury following cardiopulmonary bypass, Pancreatitis, Fat embolism.

Lab Studies: No definitive laboratory tests aid in the diagnosis of ARDS. However, as ARDS often develops concomitantly with severe acute illness, major derangement of laboratory indices may be present, including abnormal liver function tests, renal function and electrolyte levels, blood glucose, lactate, coagulation parameters, and thrombocytopenia. Hypoproteinemia predicts the development of ARDS, weight gain, and death in patients with severe sepsis. Complete blood count A leucocytosis may be evident, reflecting either the initiating stimulus or a nonspecific inflammatory resport. Anemia secondary to acute illness, underlying chronic disease, acute blood loss, or hemodilution secondary to massive fluid resuscitation may be evident. Thrombocytopenia may be present. Arterial blood gas In the very early stages of ARDS, the arterial blood gas (ABG) may be normal. A respiratory alkalosis reflecting a relative hyperventilation and hypocarbia is an early sign of respiratory distress. Hypercarbia develops with worsening disease, reflecting an increasing shunt fraction and an increased dead space. Hypoxemia also may be evident, the severity of which may be determined by the degree of oxygen supplementation. Because of the uncertainty imposed by the measurement of the partial pressure of oxygen in arterial blood and the necessity of a standard definition of ARDS, the $\text{PaO}_2/\text{FiO}_2$ ratio often is used as a measure of disease severity. Depending on coexisting pathologies, a metabolic acidosis also may be present.

Imaging Studies: Chest radiography: The chest radiograph (CXR) is essential for making the diagnosis of ARDS or ALI. In the very early stages of ARDS, the CXR

may be normal. Early changes reflect the increase in pulmonary alveolar and endothelial permeability. As the alveoli fill with a protein-rich exudate, patchy alveolar infiltrates develop. With disease progression, the lung fields become more diffusely and homogeneously opaque; however, this homogeneous appearance is misleading as chest CT scan has demonstrated. Though the radiographic appearance may be indistinguishable at first sight from that observed in cardiac failure, a number of characteristic differences exist. Cardiomegaly is not a feature of ARDS; it usually is present in the presence of marked cardiac failure. Kerley B lines, which denote the presence of interstitial edema or lymphatic swelling, very rarely are observed in ARDS. Reports conflict concerning the ability of radiologists to accurately discriminate between ARDS-related edema and edema secondary to heart failure. Other radiological differentials of the infiltrates observed in ARDS include aspiration, hemorrhage, pneumonia, and atelectasis. Distinguishing between these entities on the basis of the CXR appearance often may be difficult clinically. With increasing opacification of the lung fields, air bronchograms may become apparent. Radiological worsening often is associated with clinical deterioration and death. Air leak syndromes commonly are observed on plain CXRs of patients with ARDS. These include pneumothoraces, pneumomediastinum, pneumopericardium, subcutaneous emphysema, pneumoperitoneum, and pneumoretroperitoneum (free air located in the retroperitoneal space). Remember, when reviewing radiographs of intubated patients, free air will rise to the higher caudal areas overlying the diaphragm due to their supine position. Early and subtle signs suggestive of free air include the deep sulcus sign, (increased radiolucency in the costophrenic angle of the affected side, and increased acuteness of the costophrenic angle on the same side). The double diaphragm sign also has been reported in association with air leaks; subpulmonic air gives the impression of a second diaphragm formed by the basal border of the lower lobe. Air below the diaphragm, which does not cross the midline, suggests the presence of a pneumoretroperitoneum. Characteristic radiological changes of late ARDS corresponding to histopathological changes have been well described. After a variable period (ie, usually days to weeks), patchy areas of increased lucency appear. Associated with clinical resolution of illness, radiological improvement follows slowly. Although most children demonstrate complete resolution of radiological changes, chronic changes are apparent in a small subset. Whether the persisting changes (often ascribed to fibrosis) are the result of the primary illness or are secondary to VILI often may be unclear. Iatrogenic features visible on a CXR of a patient with ARDS may include an endotracheal tube, central venous lines, and chest tubes.

Computerized tomography

The use of CT scan of the chest was first reported almost 2 decades ago. Since then, the utility of chest CT scan in increasing the understanding of the pathophysiological mechanisms underlying ARDS and the response of the ARDS lung to ventilator maneuvers have been reported many times. Gattinoni and coworkers have been at the forefront of this research. Prior to the introduction of CT imaging, clinicians assumed that ARDS was a homogenous lung process. The use of chest CT demonstrated that while pulmonary involvement in ARDS was diffuse, it also was heterogeneous. In 1983, Gattinoni reported that, in adult patients with ARDS, areas of normal lung were interspersed with poorly aerated lung parenchyma. Even more strikingly, researchers have shown a marked spatial distribution of parenchymal collapse in the lungs of patients with ARDS. In those patients ventilated in a supine position, collapse was more pronounced in the more dorsal regions. It is postulated that a combination of edematous lung, the weight of the chest wall and mediastinal structures (i.e., specifically the heart), and supine positioning all play a part in the development of dorsal atelectasis. These findings provide an intellectual basis for the role of prone positioning in severe ARDS. Even more importantly, the CT findings added weight to the baby lung hypothesis; simply stated, the lungs of patients with ARDS functionally are much smaller than normal lungs. Indeed, some authors suggested that the volume reduction may be in the order of 75% of total lung volume. Hence, ventilation with normal physiological tidal volume may lead to iatrogenic lung damage. Recent studies, which have shown improved outcomes in patients with ARDS ventilated with small tidal volumes, lend credence to this theory.

Gattinoni has proposed that 2 types of ARDS exist, ARDS due to primary pulmonary disease (eg, aspiration, pneumonia), and ARDS arising secondary to extra pulmonary disease (eg, sepsis, trauma). In support of this hypothesis, Goodman et al recently described CT findings in adult patients with ARDS due to pulmonary and extrapulmonary disease. They concluded that marked differences existed between the 2 populations; the group with pulmonary related ARDS had either ground glass opacification or consolidation, which tended to be asymmetric. The group with extrapulmonary ARDS generally had symmetric ground glass opacification. In both groups, pleural effusions and air bronchograms were common, whereas Kerley B line and pneumatoceles were uncommon. A trend towards increased mortality existed in the group with extensive consolidation as compared to those with extensive ground glass opacification; however, this difference was not statistically significant. In the clinical setting at present, the main usefulness of

chest CT is to define the presence of coexisting illness, specifically thoracic abscess formation, barotrauma undefined on plain radiographs, or other unsuspected pathology.

Chest ultrasound: The only role for chest ultrasound in patients with ARDS is to define the presence of pleuraleffusions and to determine whether loculation of the pleural fluid is present if drainage of the effusion is being considered.

MRI: To date, no data exist concerning the role of MRI in imaging of patients with ARDS.

Echocardiogram: Echocardiogram (ECHO) may provide evidence of pulmonary hypertension (right-to-left shunt through a patent foramen ovale or small atrial septal defect); however, the practical implications of this are unclear, given that little evidence exists of clinical benefit of pulmonary vasodilators in ARDS. A more important role probably is defining the presence of congenital or acquired heart disease as a cause of respiratory distress and pulmonary edema.

Histologic Findings: Three classic histopathological phases of ARDS are described corresponding to the time course of the disease. The earliest or exudative phase occurs during days 1-7 of the initial injury. Typical histological appearances include diffuse hemorrhage, edema, leukocyte infiltration, and cellular necrosis or apoptosis. Evidence of the initiating illness also may be apparent, such as pneumonia or aspiration. The proliferative phase begins at about day 7 of the illness. The main features of this period include fibroblast proliferation, hyperplasia of type II pneumocytes, and ongoing evidence of inflammation. The fibrotic phase begins approximately 3 weeks after the onset of illness, of which the main features are fibrosis, honeycombing, and bronchiectasis.

TREATMENT

Medical Care: No treatment for ARDS is definitive. The cornerstone of management is impeccable intensive care. Treat the primary cause (eg, sepsis, pneumonia) if possible. As much as possible, minimizing the risk of development of multiple organ failure and VILI is essential. Maintaining nutrition and being cognizant of the risk of developing the numerous complications observed in critically ill children including sepsis, fluid overload, inappropriate levels of sedation, and neuromuscular-blocking agents is critical. Many of the therapies and strategies that have been proposed for ARDS, though founded on rational physiological and pathological principles, have failed to demonstrate unequivocal benefit. Reasons for this include an incomplete understanding of the pathophysiology of ARDS, the lack

of a standardized diagnostic test, and the heterogeneity of the illness and the patient population. Furthermore, an inability to adequately control for other therapies (specifically ventilation modalities) and the fact that most patients die of multiple organ failure or their precipitating illness confound the analysis and interpretation of many trials. Ventilation is the cornerstone of management of the patient with ARDS. Striking a balance between the level of ventilator support necessary to provide a reasonable degree of ventilation and oxygenation while minimizing VILI is one of the most active areas of research in the critical care field. Accordingly, many clinicians sought to tolerate higher partial pressures of carbon dioxide (PaCO_2), a so-called permissive hypercapnic strategy. Allied to this was the increasing recognition that repetitive opening and closing of alveoli exacerbated lung injury. Hence, a strategy of maintaining an open lung evolved. The twin goals of permissive hypercapnia and open lung maintenance are achieved in simple terms by optimizing PEEP and minimizing delivered tidal volumes. Hickling et al gave one of the original descriptions of permissive hypercapnia in 1990 in which they reported an almost 80% reduction in mortality. Although a number of subsequent trials found no benefit in reducing tidal volumes, in 1998, Amato et al reported that their strategy of ventilating at a low tidal volume, tolerating an elevated carbon dioxide, and preventing alveolar closure by optimizing PEEP was associated with a decreased mortality rate (38% vs 71%, $p < 0.001$) in the low tidal volume ventilation group. This study has been criticized for the high mortality rate in the control arm; however, a recent multicenter National Institute of Health [NIH]-sponsored study confirmed these results. The control group in this study was ventilated with a tidal volume of 12 mL/kg. This was adjusted to maintain a plateau pressure between 45-50 cm H₂O. In the low tidal volume group, tidal volume was reduced to 6 mL/kg and then reduced to as low as 4 mL/kg in order to maintain a plateau pressure less than 30 cm H₂O. The trial was terminated prematurely when an interim analysis showed a markedly reduced mortality rate in the low tidal volume group (31% vs 39.8%, $p = 0.007$). As an adjunct to ventilator management, prone positioning has been advanced as a means of improving oxygenation in patients with severe ARDS. It is thought that, by turning patients prone, ventilation perfusion matching is optimized by reducing the degree of atelectasis in dependent areas of the lung. However, like many strategies aimed at improving gas exchange, to date, little evidence exists that improved oxygenation, resulting from prone positioning, confers a survival benefit.

Steroids: The use of steroids has been reported as a therapy for ARDS. A number of published trials have demonstrated no benefit of large doses of steroids administered as a short course in the early phases of ARDS. However, many

investigators contend that on-going or late stage ARDS, in part, is an inflammatory condition. Hence, by virtue of their anti-inflammatory properties, steroids may be beneficial when used in the fibroproliferative phase. Meduri et al reported their experience in a randomized, double-blind, placebo-controlled trial in adult patients. Patients with ARDS who were not improving, as defined by lack of improvement in lung injury score by day 7 of respiratory failure, were randomized to receive methylprednisolone or placebo for 32 days. Those who did not respond were crossed over blindly to the alternative treatment on day 10 of therapy. The group receiving steroids had a reduced lung injury score, reduced multiple organ dysfunction score, and was extubated more frequently compared to the placebo group. Additionally, a significant reduction in hospital mortality occurred (ie, 12% vs 62%). No difference existed in the rate of infection between the 2 groups. Similar data in the pediatric population are not available. To date, no study has examined the potential role of inhaled steroids in ARDS. A subgroup of patients with ARDS with either a marked eosinophilia in their peripheral blood or in bronchoalveolar fluid also may benefit from steroid therapy.

Surfactant: As described above, one of the key events in the progression of ARDS is a reduction in both volume and function of surfactant. Additionally, surfactant inhibitors may be present within the alveolus. Based on positive results of many clinical trials in infant respiratory distress syndrome (IRDS), a number of studies have examined the role of surfactant in ARDS. Many clinicians thought that the administration of exogenous steroids would be beneficial, preventing alveolar collapse, maintaining pulmonary compliance, and optimizing oxygenation as well as possibly conferring antimicrobial and anti-inflammatory properties. The largest of these studies, which examined the efficacy of aerosolized synthetic surfactant in adults with ARDS, demonstrated no benefit. This was despite 2 preceding phase II trials, which showed a positive outcome. A number of reasons exist as to why this trial may have failed to demonstrate any efficacy of surfactant. Inhalation of surfactant is an inefficient means of delivery (estimated delivery of surfactant was <5% of the administered dose) or animal derived surfactant may be a superior product compared to artificial surfactant.

Nitric oxide: Nitric oxide (NO) is a potent vasodilator, first described in 1989. Its use as a specific pulmonary vasodilator was first described almost a decade ago in neonates with persistent pulmonary hypertension. Subsequent trials have confirmed the efficacy of inhaled nitric oxide (iNO) in this population, with the use of iNO leading to a decrease in extracorporeal membrane oxygenation (ECMO) utilization. iNO, by virtue of being a selective pulmonary vasodilator (ie, by binding rapidly to

hemoglobin, iNO is inactivated prior to reaching the systemic circulation), may have a number of attractive properties in patients.

Diet: The thinking regarding the role of nutrition in patients with ARDS has taken a paradigm shift. As more attention was paid to the role of adequate nutrition in the critically ill patient, it also was postulated that bacterial overgrowth in the gastrointestinal tract due to both antibiotic use and late introduction of feeds contributed to bacterial translocation across the bowel wall. Hence, the standard practice of introducing early enteral feeds when possible has increased. In situations of feeding intolerance, efforts to optimize enteral nutrition include the placing of a transpyloric tube (duodenal or jejunal), continuous drip feeds, and the administration of promotility agents (metoclopramide or erythromycin). Recent reports have concluded that administration of a formula supplemented with eicosapentaenoic acid, gamma-linolenic acid, and antioxidants is associated with a reduction in pulmonary neutrophil recruitment, improved gas exchange, decreased requirement for mechanical ventilation, reduced length of ICU stay, and a reduction of new organ failures. In some patients with limited pulmonary reserve, high-energy loads may lead to respiratory failure due to marked carbon dioxide production.

Activity: Activity generally is limited by the severity of the precipitating illness (eg, trauma, sepsis) and ARDS. In the event of recovery, usually no limitation on activity is necessary, except in the small minority with evidence of extensive pulmonary scarring or fibrosis.

MEDICATION: To date, no proven effective medical therapies for ARDS exist. Information regarding the use of corticosteroids and surfactant is outlined below as many clinicians use these drugs in children with severe ARDS.

Drug Category: Adrenal corticosteroids -- Elicit anti-inflammatory and immunosuppressive properties. Cause profound and varied metabolic effects. They modify the body's immune response to diverse stimuli. As discussed previously, some data suggest that the use of corticosteroids may be beneficial in patients with severe ARDS; however, to date, no large blinded multicenter trial has occurred. Although anecdotal, the suggested regime outlined below may be therapeutic in children; however, no trials exist to support their use for treatment of children with ARDS. The schedule outlined below is drawn from Meduri's original paper in 1998.

Drug Name: Methylprednisolone (Medrol, Solu-Medrol) -- The mechanism of action in ARDS is unknown. Presumably, by virtue of its anti-inflammatory effects, the host fibrotic response is dampened, thus allowing salvage of viable lung tissue.

Adult Dose: Days 1-14: 2 mg/kg IV loading dose; followed by 2 mg/kg/d IV divided q6h from days 1-14 until enteral feeding is established, then change to same dose administered PO; proceed with following tapering schedule: Days 15-21: 1 mg/kg/d Days 22-28: 0.5 mg/kg/d. Days 29-30: 0.25 mg/kg/d .Days 31-32: 0.125 mg/kg/d, then stop. If the patient was extubated prior to day 14, the therapy was advanced to day 15 (ie, 1 mg/kg/d) and then tapered according to the same schedule.

Pediatric Dose: Administer as in adults.

Contraindications: Documented hypersensitivity; viral, fungal or tubercular skin infections.

Interactions: Coadministration with digoxin, may increase digitalis toxicity secondary to hypokalemia; estrogens may increase levels of methylprednisolone; phenobarbital, phenytoin and rifampin may decrease levels of methylprednisolone (adjust dose); monitor patients for hypokalemia when taking medication concurrently with diuretics.

Pregnancy: C - Safety for use during pregnancy has not been established.

Precautions: Hyperthyroidism, cirrhosis, nonspecific ulcerative colitis, hypertension, osteoporosis, thromboembolic tendencies, CHF, convulsive disorders, myasthenia gravis, thrombophlebitis ,peptic ulcer, diabetes; use in the smallest possible dose and for the shortest possible time in elderly patients because of adverse effects; acute adrenal insufficiency may occur with abrupt withdrawal after long-term therapy or with stress

Drug Category: Surfactants -- Exogenous surfactant can be helpful in treatment of airspace disease (eg, RDS). If administered under carefully controlled conditions, surfactant also may be helpful in other conditions (eg, MAS), though it is not yet approved for such. Following inhaled administration, surface tension is reduced and alveoli are stabilized, thus decreasing the work of breathing and increasing lung compliance.

Drug Name: Calfactant (Infasurf) -- A natural calf lung extract containing phospholipids, fatty acids, and surfactant-associated proteins B (260 mcg/mL) and C (390 mcg/mL). As outlined above, decrease in surfactant levels and function commonly are observed in ARDS. Some evidence exists (based on small trials) that its use may be beneficial in children with ARDS; however, a large randomized controlled trial of artificial surfactant in adults failed to show benefit.

Adult Dose: No adult dose is available for calfactant; because of the negative results of a trial reporting the use of aerosolized Exosurf, its use is not discussed further.

Pediatric Dose: Endotracheal instillation of 80 mL/m² of Infasurf delivered in 4 equal aliquot portions in rotating positions (ie, right side down, head down; right side down, head up; left side down, head down; left side down, head up); children were hand ventilated during the administration for 10-20 min with an FIO₂ of 1 using peak pressures and rates that approximated previous ventilator settings.

Contraindications: None known

Interactions: None reported

Pregnancy: C - Safety for use during pregnancy has not been established.

Precautions: Transient episodes of cyanosis, bradycardia, reflux of surfactant into the endotracheal tube, and airway obstruction were observed more frequently among infants treated with calfactant in clinical trials; because of the possible rapid improvement in compliance, pay attention to delivered tidal volumes in patients ventilated in a pressure-control mode.

A.K. Keshary & Associates
CHARTERED ACCOUNTANTS

Off : Moti Bhawan, Lanka
Varanasi, Ph : 366633

Resi. : B-6, Brijenclave Colony
Sunderpur, Varanasi, Ph. 316644

ASSOCIATION OF ANAESTHETISTS OF INDIAN MEDICINE, B.H.U., VARANASI
RECEIPT & PAYMENT ACCOUNT FOR THE PERIOD ENDING ON 31.03.2001

Receipt	Amount (Rs.)	Payment	Amount (Rs.)
To <u>Opening Balance</u>		By Audit Fee	1,000.00
Bank Balance	88,122.40	By Stationery & Printing	8,810.00
Cash	3,099.66	By Postage Expenses	196.00
To Membership Fees	13,720.00	By Telephone	471.50
To Interest on FDR	5,880.00	By Travelling Expenses	2,901.00
To Interest on HDFC	5,875.00	By Momento & Pins	1,300.00
To Interest on S/B A/c	77.00	By Typing & Xerox	802.00
		By Refreshment	49.00
		By Transfer to UP State AAIM	1,195.88
		By Transfer to MS State Share	662.00
		By Transfer to Sangyahan Journal	2,357.00
		By Fixed Deposit (HDFC)	30,000.00
		By <u>Cash & Bank Balance</u>	
		Bank Balance (SBI)	55,852.52
		Bank Balance (BOB)	7,277.00
		Cash in Hand	3,899.66
	1,16,774.06		1,16,774.06

President : Sd/-
Secretary : Sd/-
Treasurer : Sd/-
of AAIM

AUDITORS REPORT

We have verified above Receipt & Payment
Account with the records of the institution
and found the same in accordance therewith.

Place : Varanasi
Dated: 22.07.2002

For A.K. Keshary & Associates
Chartered Accountants

Sd/-
(Arvind Kumar Keshary)
Proprietor

A.K. Keshary & Associates
CHARTERED ACCOUNTANTS

Off : Moti Bhawan, Lanka
Varanasi, Ph : 366633

Resi. : B-6, Brijenclave Colony
Sunderpur, Varanasi, Ph. 316644

ASSOCIATION OF ANAESTHETISTS OF INDIAN MEDICINE, B.H.U., VARANASI
BALANCE SHEET AS ON 31.03.2002

Liabilities	Amount (Rs.)	Assets	Amount (Rs)
Capital Fund:		Investment & Deposit:	
Opening Balance	1,42,517.55	F.D. for AAIM	6,000.00
Add: Membership		F.D. for AAIM	21,000.00
Fee	<u>13,720.00</u>	F.D. for AAIM	15,000.00
	1,56,237.55	F.D. for G.B. Operation	5,000.00
Less: Excess of		H.D.F.C.	50,000.00
Exp. over Income	<u>3,698.00</u>	F.D. for Ashwinau Award	6,000.00
	1,52,539.55	Loans & Advances:	
Unsecured Loans:		Loans To Conference	3,000.00
Conference Account	1,10,542.51	Fund T/For Op. Bank A/c	
		Journal	10,838.00
		Fund T/For F.D. in favour of	
		Sangyahan Shodh Journal	45,000.00
		Transfer To:	
		U.P. State AAIM	1,195.88
		M.S. State Share	662.00
		Sangyahan Sodh Journal	2,357.00
		Fixed Deposit (HDFC)	30,000.00
		Current Assets:	
		Cash at Bank (SBI)	55,852.52
		Cash at Bank (BOB)	7,277.00
		Cash in Hand	3,899.66
	2,63,082.06		2,63,082.06

Place : Varanasi
Dated: 20.07.2002

For A.K. Keshary & Associates
Chartered Accountants

Sd/-
(Arvind Kumar Keshary)
Proprietor

A.K. Keshary & Associates
CHARTERED ACCOUNTANTS

Off : Moti Bhawan, Lanka
Varanasi, Ph : 366633

Resi. : B-6, Brijenclave Colony
Sunderpur, Varanasi, Ph. 316644

SANGYAHARAN SHODH JOURNAL, B.H.U., VARANASI
RECEIPT & PAYMENT ACCOUNT FOR THE PERIOD ENDING ON 31.03.2002

Receipt	Amount (Rs.)	Payment	Amount (Rs)
To <u>Opening Balance</u>		By HDFC Fixed Deposit	20,000.00
Bank Balance	6,909.49	By Printing Charge	12,691.00
Cash	NIL	By Stationery & Xerox	40.00
To Journal Sales	100.00	By Postage Expenses	433.00
To Advertisement	36,095.00	By Bank Charges	737.00
To Interest on F.D.R. & S.B. A/c	7,218.50	By <u>Closing Balance</u>	
To Loan from AAIM	2,357.00	Bank Balance (SBI)	9,533.49
		Bank Balance (BOB)	4,718.00
		Cash in Hand	4,526.50
	52,679.99		52,679.99

President : Sd/-
Secretary : Sd/-
Treasurer : Sd/-
of AAIM

AUDITORS REPORT

We have verified above Receipt & Payment Account with the records of the institution and found the same in accordance therewith.

Place : Varanasi
Dated: 20.07.2002

For A.K. Keshary & Associates
Chartered Accountants

Sd/-
(Arvind Kumar Keshary)
Proprietor

A.K. Keshary & Associates
CHARTERED ACCOUNTANTS

Off : Moti Bhawan, Lanka
Varanasi, Ph : 366633

Resi. : B-6, Brijenclave Colony
Sunderpur, Varanasi, Ph. 316644

U.P. STATE BRANCH, A.A.I.M., B.H.U., VARANASI
RECEIPT & PAYMENT ACCOUNT FOR 3 MONTH ENDING ON 31.03.2002

Receipt	Amount (Rs.)	Payment	Amount (Rs.)
To <u>Opening Cash & Bank</u>		By Momento	NIL
Bank Balance	7,218.88	By Fax & Telephone	72.00
Cash	543.70	By Photostate Charges	793.00
To Registration Fees	24,800.00	By Printing Charges	50.00
To Donation	5,000.00	By Stationery Expenses	5,246.00
To Interest on S/B A/c	130.00	By Photography & Videography	980.00
		By Inauguration & Valed.	2,210.00
		By Cattering expenses	14,450.00
		By Misc. Expenses	1,050.00
		By Postage Expenses	125.00
		By <u>Cash & Bank Balance</u>	
		Bank of Baroda	11,253.88
		Cash in Hand	1,416.50
	37,692.58		37,692.58

President : Sd/-
Secretary : Sd/-
Treasurer : Sd/-
of AAIM

AUDITORS REPORT

We have verified above Receipt & Payment Account with the records of the institution and found the same in accordance therewith.

Place : Varanasi
Dated: 20.07.2002

For A.K. Keshary & Associates
Chartered Accountants

Sd/-
(Arvind Kumar Keshary)
Proprietor

New Members

List of Members in Continuation of Previous List (February 2002, Vol 5, No. 1)
Life Bonafied Members

- S/52 Dr. Bapat Sujatha Sanjay, A/P Borlipanchatan, Tal. – Suriwarohan, Distt. – Raigad – 402 403.
S/53 Dr. Bholanath Mourya, Vill Basamahua, P.O. – Sahson, Distt. – Allahabad – 221 507.

Life Associate Members

- A/98 Dr. Mrityunjaya Prasad, H. No. 254/1, Plot No. 2, Jaiswal School Road, Mughalsarai, Distt. – Chandauli, (U. P.).
A/99 Dr. Ajay Kumar Singh, Ganeshpuri Colony, Near Hyderabad Gate, Post – Susuwahi, Varanasi.
A/100 Dr. Deepa Mishra, C/o Mr. Mukesh Mishra, Sant-Vihar Colony, Hasanpur, Manduadih, Varanasi.
A/101 Dr. Mozahid Iqbal Lari, P.O. – Lar Town, Distt. Deoria.
A/102 Dr. Ramshankar, H. No. 538K/480, Ektapuram, Triveni Nagar-III, Sitapur Road, Nirala Nagar, Lucknow.
A/103 Dr. Premshankar Pandey, SA 3/187K-1, Pandey Nagar Doulat, New Road, Pandeypur, Varanasi.
A/104 Dr. Jaiprakash Narayan, Jai Hospital & Maternity Home, Gorakhnath Road, Gorakhpur – 273015.

SAVITRI DIAGNOSTIC CENTRE

Dr. P.K. Tiwari M.D. (Path.)

Dr. Ashok Srivastava Pathologist

SHOP NO. 12, GYAN MANDAL COMPLEX
B.H.U. ROAD, LANKA, VARANASI-5

सुविधायें

• एक्स-रे

• ई.सी.जी.

• पैथोलॉजी

• यू.एस.जी

THE NEWS

6th-7th February, 2003

Mumbai

- Global update on pain (II) (Indian Journal of Anaesthesia)
- **Info:** Dwarkadas Baheti, Secretart General, R.N. – 128, MRC, Bombay Hospital, 12 New Marine line, Mumbai – 400 020, e-mail: globulpain2003@rediffmail.com.

8th-11th February, 2003

Jaipur

- India: International Critical Care Congress 2003 and 9th Annual Conference of Indian Society of Critical Care.
- **Info:** Conference, Secretariat, Rungta Hospital, Malaviya Nagar, Jaipur – 302 017, India, Tel.: 91-141-522000/1/2, Fax.: 91-141-524082; e-mail: drnrungta@hotmail.com, website: isccmjaipur.org.

18th to 20th February, 2003

Dhaka

- Bangabandu Sheikh Mujib Medical University, Shahbagh, Dhaka – 1000 (Bangladesh).
- **Info:** Dr. Lutfulaziz, Org. Secretary, Department of Anaesthesia, Analgesia and Intensive Critical Care Medicine, Sheikh Mujib Medical University, Shahbagh, Dhaka – 1000, Bangladesh, Tel.: 0880-2-8619115, Fax.: 880-2-9669444, e-mail: sacabd@dhakha.net.

5th-6th March, 2003

Varanasi

- National Conference on Recent Advances in Ayurvedic Medicine.
- **Info:** Dr. V.K. Joshi, Organizing Secretary, Faculty of Ayurveda, IMS, BHU, Varanasi – 221 005.

22nd-26th March, 2003

Lousiana (U.S.A.)

- 77th Clinical and Scientific Congress of the International Anaesthesia Research Society.
- **Info:** International Anaesthesia Research Society, 2 Summit Park Drive, Suite 140, Cleneland, Ott 44131-2553: U.S.A., Tel.: +12166421124, Fax: +1216642112, e-mail: iarshq@iurs.org, website/ www.iars.org.

18th-21st June, 2003

Numberg AG

- Messezentrum Numberg German Congress of Anaesthesiology 2003.
- **Info:** Medizinisch Congress Organization Numberg AG, Tel.: +49911393160, Fax.: + 49911331204.

26th-28th September, 2003

New Delhi

- 7th Conference of International Trauma Anaesthesia and Critical Care Society (Indian Chapter).
- **Info:** Dr. B.K. Rao, Organising Secretary, Trauma Criticare 2003, Intensive Care Unit, Sir Ganga Ram Hospital, Rajinder Nagar, New Delhi – 110 060, e-mail: traumacriticare2003@yahoo.com.

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Healthier the Sapling**



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BHARATIYA SANGYAHARAK ASSOCIATION
(ASSOCIATION OF ANAESTHETISTS OF INDIAN MEDICINE)

MEMBERSHIP FORM

I wish to join **BHARATIYA SANGYAHARAK ASSOCIATION** as Life/Annual/Associate(Life/Annual)/Honorary member and enclose Cheque/Bank Draft/Money Order/Cash for Rs..... towards subscription for the association, for the year.....

Full Name (in Block Letter) :

Date of Birth and Sex :

Qualifications :

Designation/Profession :

Permanent Residential Address with Tel. No. :

Present Address to which correspondence to be sent :

Speciality : Sangyahan/Pain/Palliation

Membership Fee (w.e.f. 01.04.2002) : Life Member Annual Member

Membership Fee : Rs. 1500/- Rs. 200/-

Associated Membership : Rs. 1000/- Rs. 200/-

I agree to abide by the rules and regulation of the Bharatiya Sangyaharak Association.

Date :

Signature of Applicant

Correspondence Address

Bharatiya Sangyaharak Association
Operation Theatre Block Indian Medicine
S.S. Hospital, I.M.S., B.H.U., Varanasi

Out station cheques should be accompanied by Rs. 30/- as Bank charges. Cheque/Draft/Money Order should be send in favour of Association of Anaesthetists of Indian Medicine, Varanasi - 221 005.

SANGYAHARAN SHODH

An Official Journal of Bharatiya Sangyaharak Association (A.A.I.M.)

• Form IV (See rule 8)

Declaration under Rules of the Press and Registration Act (1956)

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S.S. Hospital, Banaras Hindu University
Varanasi - 221 005.

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S.S. Hospital, Banaras Hindu University
Varanasi - 221 005.

Chief Editor : Dr. Devendra Nath Pande

Whether Citizen of India ? : Yes

Address : 928/2 Ganeshpuri Colony
Susuwahi, Varanasi - 221 005.

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Operation Theatre Block (Indian Medicine)
S.S. Hospital, Banaras Hindu University
Varanasi - 221 005.

I, Devendra Nath Pande, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-

Devendra Nath Pande
Signature of Publisher



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