SANGYAHARAN SHODH

February 2001 **Volume 4, Number 1**

संज्ञाहरण शोध

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

Please encourage others to be new members

Bharatiya Sangyaharak Association (A.A.I.M.)

Postal Address

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

Announcement

The membership of Association is available to person who are actively engaged in the field of Sangyaharan (Anaesthesia), Pain or Palliation. Membership will entitle members to attend the annual conferences and to receive the official Journal 'Sangyaharan Shodh.' Please fill in enclosed form and send it with crossed cheque or D/D in favour of A.A.I.M., Varanasi.

Hon. Secretary
A.A.I.M.

SANGYAHARAN SHODH

Journal Subscription (For other than members)
Half yearly - Rs. 50.00 per copy
Annual - Rs. 95.00 for two copies
Please send cheque or D/D in favour of Sangyaharan Shodh, A.A.I.M., Varanasi.

Address

Dr. D.N. Pande, Chief Editor, Section of Sangyaharan, Faculty of Ayurveda, Institute of Medical Sciences, Banaras Hindu University, Varanasi - 221 005.

Tariff for Advertisement in 'Sangyaharan Shodh'

Full Page	-	Rs.	1000.00	For insertion in one issue
Half Page	-	Rs.	600.00	
Qr. Page	-	Rs.	300.00	
Back Cover	-	Rs.	2000.00	
Inside Cover	-	Rs.	1500.00	
Life member- Advertiser	-	Rs.	10000.00	One time full payment

D/D or Cheque in favour of Chief Editor, Sangyaharan Shodh, A.A.I.M., Varanasi.

Chief Editor
Sangyaharan Shodh

EDITORIAL BOARD

Sangyaharan Shodh is Published bi-annually and is an Official Journal of the Bharatiya Sangyaharak Association (Association of Anaesthetists of Indian Medicine).

Subscription Rates

Hfly Rs. 50.00
Annual Rs. 95.00
Life Rs. 1000.00

Editorial Office

The Chief Editor, Sangyaharan Shodh, Section of Sangyaharan, Operation Theatre (Indian Medicine), S.S. Hospital, Institute of Medical Sciences, Banaras Hindu University, Varanasi – 221 005.

OFFICE BEARERS

Patron
Dr. S.B. Pande
Ex-Reader and Incharge
Section of Sangyaharan
I.M.S., B.H.U., Varanasi

President
D.P. Puranik
Head-Sangyaharan
Tilak Ayurved College
Pune

Vice Presidents
Dr. D.N. Pande
Lecturer & Incharge
Section of Sangyaharan
I.M.S., B.H.U., Varanasi

Dr. K.K. Pandey
Lecturer
Deptt. of Prasuti Tantra
I.M.S., B.H.U., Varanasi

Secretary
Dr. P.K. Sharma
M.O. Anaesthesia
State Ayurved College
Varanasi

Joint Secretaries
Dr. S.K. Mishra
Bhadohi
Dr. K. Lal
Varanasi
Dr. K.V. Hanmant
Satara

Treasurer
Dr. R. Asthana
Consultant Anaesthetist
Gorakhpur

Members of Executive Body
Dr. S. Bhat (Udupi)
Dr. C.K. Dash (Barhampur)
Dr. P.R. Mishra (Varanasi)
Dr. G. Shah (Begusarai)
Dr. A. Pai (Varanasi)
Dr. S.K. Singh (Bhadohi)
Dr. H.O. Singh (Varanasi)
Dr. R.K. Jaiswal (Faizabad)
Dr. A. Ali (Varanasi)
Dr. V.N. Chitale (Ratnagiri)
Dr. R.K. Gupta (Sawantwadi)
Dr. N.V. Borse (Pune)

OFFICE

Section of Sangyaharan, Operation Theatre Block, Indian Medicine
S.S. Hospital, Banaras Hindu University, Varanasi – 221 005.

SANGYAHARAN SHODH

February 2001 **Volume 4, Number 1**

CONTENTS

Editorial

The IVth National Conference held at S.D.M. Ayurveda College Udupi on 24-26th November, 2000 is a memorable event in the history of our Association. I congratulate the entire Organising Committee members for grand success of the conference. All the authorities of both Colleges - Hassan and Udupi specially Shri Dr. Veerendra Heggade, Dharmadhikari and President of S.D.M. Educational Society deserve our heartiest thanks for their Co-operation, encouragement and guidance. Really, they provided a golden chance to the delegates - from all over India to discuss their researches, to inspire with guest lectures of eminent scholars of anaesthesia and to exchange their views amongst 300 delegates of the Country. Panel discussion under chairmanship of Prof. L.M. Singh was a great moment for every body due to which a clear-cut direction for surgeons of Indian medicine was achieved and accepted. It was felt seriously that without science of Sangyaharan (anaesthesia) the surgical disciplines of Ayurveda are handicapped and ultimately Ayurveda would not survive in the present day circumstances without surgical skill. A minimum standard and curriculum of Shalya and Sangyaharan must be maintained all over India. The conference ended with conclusion that every P.G. institution of Ayurveda should start P.G. Course in Sangyaharan speciality and should create a full-fledged department of Sangyaharan so that all the surgical disciplines - Shalya-Shalakya - Prasuti Tantra be enriched with practical training.

Through this editorial Column I request the authorities of Health Ministry - Centre and States both, the authorities of C.C.I.M. and Directors of I.S.M. to implement the resolutions of this grand conference. I request to the Principals and Managements of Colleges to take firm steps in this direction.

Jai Hind-Jai Sangyaharan

Devendra Nath Pande
Chief Editor

Glimpses - IVth National Conference at S.D.M. Ayurved College, Udupi on 24/11/2000.

INAUGURAL FUNCTION

Presidential Address by Dr. D.P. Puranik, President, A.A.I.M.

श्री धन्वन्तरये नम:

Dear Colleagues,

It is indeed a great pleasure for me to be here on the occasion of 4th National Conference of Association of Anaesthetists of Indian Medicine. Certainly this is a very unique conference of its kind since it will be definitely last conference of this decade, this century and the Millennium.

A.A.I.M. was founded in the late 1996 and came into existence with the tremendous and untiring efforts of stalwart personality Prof. Dr. S.B. Pande. It is very remarkable that after the inception of this Association it has made extraordinary progress. Most admirable and creditable feature is that so far four conferences have been organized successfully in successive years. I think this could be the only organization which has achieved such a great success in merely five years' span after its establishment. First conference was organized in the North, the second one in the East, third one IN West and now it is being organized in the South. And this very fact elaborates the National status of this great organization having it roots in all directions of our country.

In the beginning I mentioned that this could be the last event of 20th Century and so if we look back and try to take a review we see so many Revolutions and Evolutions in the field of Medicine during last century. Especially the modern Medical Science made tremendous progress in all branches, making once upon time impossible things possible. It is said very proudly about Anaesthesiology.

"No discovery ever made in Medicine has proved more beneficial to human race than the discovery of Anaesthesia, not only because it has alleviated the fearful pain of Surgery but also because the whole structure of modern medicine has drawn strength from its success".

On the otherhand it is seen that stalwarts in Ayurvedic Medicine never gave due importance to Sangyaharan. Because of this unpardonable negligence towards anaesthesia all the branches of Ashtang Ayurved could not do expected progress after certain limit. The branches which suffered most were Shalyatantra, Shalakyatantra and Strirog-prasuti tantra. Because of unavailability of anaesthesia services the Ayurvedic surgeons had no options other than to opt for "Kasharsutra" as the only surgical procedure they could practice.

Inaugural Function of IVth National Conference of A.A.I.M. at S.D.M. Ayurved College, Udupi on 24.11.2000 (from Rt.): Dr. S. Bhat, Dr. P.N. Rao, Prof. K. Pandey, Prof. S.R. Kanakraj – Registrar, Dr. D.N. Pande, Dr. M.H. Raybagi

At least now all the Surgeons Gynecologists working in the field of Ayurvedic Medicine should realize the importance of Sangyaharan and they should come forward to strengthen and support the organizations like A.A.I.M. They should also put efforts to start Post Graduate Courses in Sangyaharan at various states so that more experts can be made available for their own benefit. Because the present information reveals that there are so many Institutes in India which are imparting Post Graduate training in Shalya-Shalakya-Strirog, but unfortunately there is one and only one Institute in India which is imparting training in Sangyaharan and that is B.H.U., Varanasi. This requires a prompt & immediate change.

So it's my strong appeal to all concerned authorities from C.C.I.M., Directors of Ayurved from various states and the learned stalwarts from various Universities that atleast now they should understand the importance of Sangyaharan and should take necessary steps to start Post Graduate degree courses in Anaesthesia in atleast one Institute in every state.

In the meanwhile, I would say it will be most practicable if a Diploma Courses of two years duration in Sangyaharan are started simultaneously, so that the need for sufficient number of experts can be made available at an earlier stage.

The status of Sangyaharan in various Institutes and Universities is below satisfactory. Specialities of Sangyaharan are given secondary treatment and at many places they are working under the dominance of Surgeons. Even at B.H.U. there is no separate department of Sangyaharan and as yet they have to work as a section of Shalya-Shalakya Department.

Inauguration of Function by Lighting the Lamp (from Rt.): Dr. S. Bhat, Dr. P.K. Sharma, Dr. P.N. Rao, Dr. D.P. Puranik, Dr. S.R. Kanakraj, Dr. M.H. Raybagi and Prof. K. Pandey

So it is my strong demand that a special recognition should be given to Sangyaharan and there should be provision of separate department of Sangyaharan in every Institute of Indian Medicine, in India. I am very proud to mention here that at my Institute at Pune, at Seth Tarachand Ramnath Charitable Ayurvedic Hospital of Tilak Ayurved Mahavidyalaya, Anaesthesia Department has been established in way back in 1950 having separate entity and separate functioning. It will be again interesting to know that State of Maharashtra is the first state in India to start Post Graduate Anaesthesia Courses (Fellow) in 1960's proving that they are the real pioneers to start Post Graduation in Anaesthesia on the pattern of Western Medical Science. I think this is an ideal example to be followed by all states.

No science can do progress without research. Any science or branch of science can show progress only if there is continued process of research in it. Without research, science becomes stand still. So I strongly stress the need of research in Sangyaharan at various levels. At present research work is being carried out at Post Graduate education level at B.H.U. with limited scope. Unless we succeed in starting these courses at many places the process of research will not be geared up. Here I stress the need of "Interpathy Research". Unless our research studies do not have basic modern structure and modern parameters assessment it will not be accepted by the Modern World. Research in Medicine is really boundless and I hope our new generation will certainly devote themselves for this cause. Interpathy Research will definitely promote the process of action, reaction and interaction amongst different pathies, especially Ayurved and Allopathy. This will help in uplifting the standards of research studies in Indian Medicine and widen the scope of acceptance by entire world.

At organisational front, A.A.I.M. is definitely doing satisfactory progress. The number of membership is at increase. Even Modern anaesthetists have shown their willingness to enroll for membership. We have succeeded in opening two new state branches and I am sure, in near future we will be able to open more state and territorial branches to strengthen our movement. National conferences, workshops, seminars, Sangyaharan Day, Clinical meetings are being organized to provide platform for youngsters to present their academic and research work. Overall I see a very bright future for our Association in coming years.

Though, it seems, that overall things are going smooth & well & progress and status of Association is satisfactory, the path of the Association is not without problems. Association has many obstacles to cross. There is constant oppositions from outside and from inside. To achieve the aim is not an easy task. But I am very confident that with the strong will and efforts of colleagues and Association workers we will cross all obstacles and ultimately will succeed in achieving our goal.

To sum up my speech I put forth following points for pursue. 1) Strong demand should be made to start with Diploma and Degree Courses of Anaesthesia at University level (2) Surgeons and Gynaecologists should join in the movement. (3) There should be promotion for interpathy research (4) There should be establishment of separate departments of Sangyaharan at University level and at Institutes of Indian Medicine.

As a President, I wish and am very sure this conference will be a great success. I congratulate all the authorities, office bearers and sincere workers who are going to make this Conference a memorable one.

Our ultimate aim is to provide Painless conditions to human race. Modern Medical Science says that we should strive in future to give even better and safer services of pain relief and care to our patient and if West and East meet, will provide the Best for Mankind.

Our great Ayurved Science depicts it with the words.

सर्वेपि सुखिनः संतु, सर्वे सन्तु निरामया:

Jai Hind, Jai Sangyaharan

ASHWINAU AWARD – 2000

DR. DEVENDRA NATH PANDE
[B.A.M.S., M.D. (Ay.), Ph.D.]

Dr. Devendra Nath Pandey son of Late Shri Ram Autar Pande, Founder Principal of Inter College Khalispur, Ghazipur, was born on 15 July 1956 in Village & Post – Khalispur, District – Ghazipur (U.P.). He did his gradution (B.A.M.S.) from Bihar University in 1981 and got his M.D.(Ayurveda) and Ph.D. degrees from Banaras Hindu University, Varanasi in 1986 and 1990 respectively. Presently he is serving as Sr. Lecturer (Anaesthesia) and Incharge of Section of Sangyaharan in the Department of Shalya-Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

Teaching Experiences

Total 17 years in the capacity of Demonstrator, Lecturer, Clinical Registrar and Sr. Lecturer.

Research Experience

- Thesis for M.D.(Ay.): Poorvakarma in relation to Anaesthesia
- Thesis for Ph.D.(Sangyaharan): Further studies on Poorvakarma in Anaesthesia

Supervision

Post graduate: 14, Ph.D.: 2

Positions held

- Incharge, Operation Theatre
- Incharge, Section of Sangyaharan
- Member, Departmental Research Committee
- Member, Faculty of Ayurveda, Institute of Medical Sciences, Banaras Hindu University
- Member, Board of Examiners, Shalya-Shalakya, Banaras Hindu University
- Member, Hospital Purchase Committee
- Member, Board of Studies, Departement of Shalya-Shalakya, Banaras Hindu University
- President, Association of Teachers of Indian Medicine, Banaras Hindu University
- Sr. Vice-President, Association of Teachers of Indian Medicine

Publications

Book	:	One
Papers	:	Nearly 50
Chief Editor	:	Sangyaharan Sodh, An Official Journal of A.A.I.M.

Conferences attended and Papers presented

Nearly 20

Participation in Scientific Societies

Life Member of

- National Integrated Medical Association
- All India Science Congress
- Research Society of Clinical Anaesthesiology & Pharmacology
- Association of Anaesthetists of Indian Medicine
- Indian Association of Palliative Care
- Indian Society for Study of Pain
- All India Ayurvedic Teacher's Association

Contributions

- First Ph.D. in Sangyaharan
- First Medical Officer appointed as M.O. (Anaesthesia) in B.H.U.
- First Lecturer appointed in the Sangyaharan speciality by University in India
- **Published** First Journal in the "Indian System of Medicine" on Sangyaharan
- **Written First Book on "Sangyaharan" – SANGYAHARAN PRAKASH**
- Conducted Unique Research in the field of pain management through indigenous drugs – experimental and Clinical
- **Organised** First Conference in Sangyaharan at B.H.U., Varanasi
  First Orientation Course in Sangyaharan at B.H.U., Varanasi
  Workshops on Neonatal Resuscitation – yearly
  Workshops on Cardio-Cerebro-Pulmonary Resuscitation and Post Anaesthetic Care – thrice yearly
- **Visited as Guest Speaker**
  S.D.M. Ayurveda College, Udupi (Karnataka)
  Tilak Ayurved Mahavidyalaya, Pune
  F.F.D.C. Kannauj
  International Conference of South Asian Countries, Patna

Dr. B.G. GHANEKAR MEMORIAL ORATION

Delivered by Prof. K. Pandey on 25.11.2000 at the IVth National Conference of the Association of Anaesthetists of Indian Medicine, UDUPI

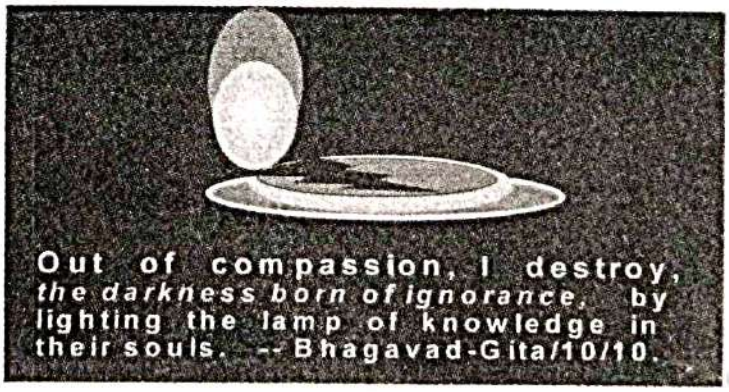
ORATOR
Prof. K. PANDEY
[M.B.B.S., D.A., M.D. (Anaesthesia)]

He was born on January 15, 1928. He did his M.B.B.S. from Lucknow University in 1950, D.A. from Bombay University in 1956 and M.D. (Anaesthesia) from Lucknow University in 1966. He retired as Professor and Head, Department of Anaesthesiology, Institute of Medical Sciences, Banaras Hindu University, Varanasi in 1988. Presently he is Emeritus Professor of Anaesthesiology, Department of Anaesthesiology, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

Dr. Ghanekar was born in 1887 at village Rajuri, Dist. Pune to Shrimati Mathurabai and Shri Govinda Ghanekar in a family with traditional erudition in Sanskrit literature. He obtained his B.Sc. degree from Ferguson College, Pune and M.B.B.S. from Grant Medical College, Bombay. He also acquired Ayurveda Visharad and Ayurvedacharya from All India Ayurved Vidyapeeth, Delhi with gold medals for being the topper in both. When Pandit Madan Mohan Malaviya called him to join as Lecturer at the Ayurvedic College in Banaras Hindu University, he traveled on foot to Kashi (now Varanasi). Dr. Ghanekar's style of living was that of a Rishi. Dr. Ghanekar was an ardent advocate of incorporation of modern scientific knowledge in Ayurvedic Studies because he believed that this amalgation will give birth to a system of medicine most suited to, not only in India but to the humanity at large. Professor Ghanekar with his qualities of mind and heart created an insatiable thirst for knowledge in his students, some of whom achieved great name and fame not only in Ayurved but in research and practice of many modern disciplines of medicine.

Whenever I come to think of Dr. Ghanekar the following lines of Geeta flash in my mind:

I offer my most respectful regards to Dr. B.G. Ghanekar



Free Radicals and Organ Damage

Introduction

Free radicals were known in radiation chemistry for a long time. However, it is only recently that their occurrence in biological tissues, even in normal situations, has become widely realised. Formation of reactive oxygen molecules is an important step during oxidative catabolism of assimilated food for production of usable energy. Tissue damage, resulting from transmigrated reactive oxygen molecules is now well accepted. Moreover, it may be a sequel to their production in excess, overwhelming the natural defences against them.

A variety of antioxidant formulations have flooded the drug market and are being prescribed and consumed in the hope that they will ensure, at least, a normal health (if not a supernormal health). It is essential to appreciate the real significance of reactive oxygen molecules in order to intelligently exploit the potential benefits of using antioxidant therapy.

My aim in this article is to first give a simple description of the chemistry of free radicals followed by an introductory account of how they are formed in the human organism. A detailed account of the way in which free radicals may cause damage at the cellular level will then be presented. The defences available against oxidants will also be summarised. The nature of *oxidative stress* will be elucidated. A detailed account of the pathophysiology of oxidant-related tissue damage would follow. Clinical conditions, where oxidants play a major aetiological role will be listed. The inherent defences against reactive oxygen molecules, and some therapeutic aids that are at present available will be described.

Biochemistry of free radicals

Before we go into the exact chemical nature of free radicals, let us recapitulate some relevant facts of Physical Chemistry.

1. There are three main types of elements based on their propensity to lose or gain electrons:
   - **Electropositive** - those that lose electrons
   - **Electronegative** - those that gain electrons, and,
   - **Others** - that show no tendency to lose or gain electrons.
2. The natures of bonds that are formed between these three types of elements are shown in Table 1.
3. The terms oxidation and reduction are define as follows: Oxidation means loss of an electron, gain of oxygen or loss of hydrogen. Reduction, on the other hand, means gain of an electron, loss of oxygen or gain of hydrogen.

Oxidation and reduction reactions are very common in the biological systems during metabolism of substrates for production of usable energy, storage of substances for future use, synthesis of biomolecules and restoration of Redox potentials.

Table 1. Showing types of bond between different types of elements

Type of bond	Type of elements forming the bond
Ionic	Electropositive + Electronegative
Covalent	Electronegative + Electronegative
Metallic	Electropositive + Electropositive

What are free radicals?

Free radicals can be broadly defined as any molecule, atom, or ion with an unpaired electron or odd numbered electrons occupying the outermost orbital. The adjective 'free' is rather redundant and can be omitted with impunity (Fig.1). Free radicals form when covalent bonds break.

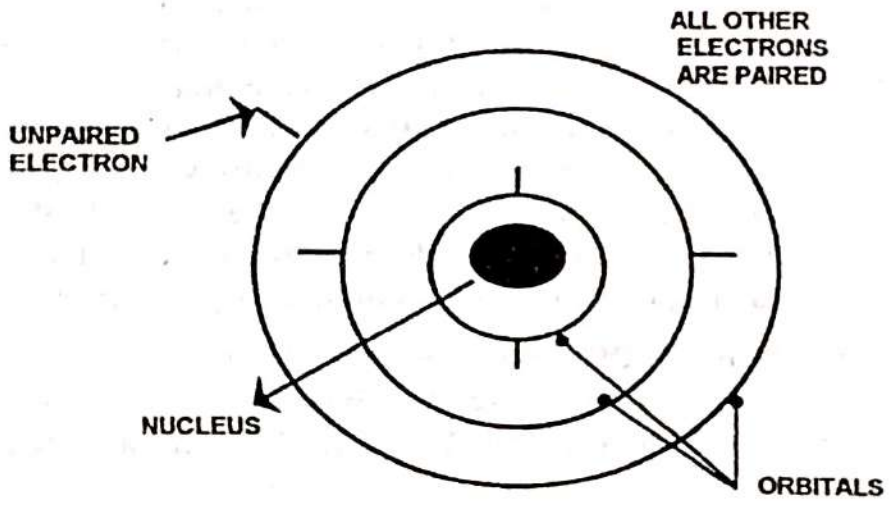


Fig. 1. A hypothetical atom with an unpaired electron in the outer orbital

Many synonyms of free radicals are in common use. Apart from the terms 'Reactive Oxygen Molecules' and 'Reactive Oxygen Metabolites' (ROM), Reactive Oxygen Species (ROS) or, only 'Reactive Molecules' or 'Reactive Radicals' or 'oxidant' is frequently used.

Consider the following reaction: $R^{\bullet} + R^{\bullet} \rightarrow R\text{-}R$, where $R^{\bullet}$ and $R^{\bullet}$ are any two reactive radicals. The formation of R-R is a dimerization by covalent bonding. When reactions involve breaking of covalent bonds (as the bond between R-R), two reactive radicals are formed.

A free radical is often an oxygen-centred molecule that has gained 1,2 or 3 electrons. Other species of free radicals are also found in the biological systems. Those of most concern are carbon-centred (C-R▪) radicals.

Free radicals are highly reactive and they combine with many biomolecules like structural, contractile, transport and receptor proteins, enzymes, membrane glycolipids, glycosaminoglycans, and nucleic acids (gene) and degrade them. Normal health and often survival are threatened because of these biomolecular injuries.

Important free radicals

The important reactive molecules arising in humans are oxygen-centred. They are super oxide (O_2▪), hydrogen peroxide. (H_2O_2) and hydroxyl (OH) radicals. Oxygen-centred free radicals are produced throughout the cellular milieu and occur in mitochondria, lysosomes, peroxisomes, nuclei, endoplasmic reticulum, and plasma membrane. Oxygen-centred reactive molecules normally form during oxidative catabolism of nutrients inside the mitochondria on the electron transport particle (ETP). Reduced cytochrome oxidase ($CyOxFe^{2+}$) present there has the unique property of transferring electrons to molecular oxygen, which combine with the hydrogen atom (removed on dehydrogenation of substrates in the catabolic cycles) to form water. Even under normal circumstances about 3-10 percent of the oxygen-centered free radicals, leak out in the cytosol. Thus, mitochondrial oxidative catabolism, phospholipid metabolism, and proteolytic pathways are the main potential sources of intracellular free radicals. Polymorphonuclear cells (PMN) and hypochlorous acid (HOCl), derived from PMN are also sources of reactive oxygen radicals. In the lungs, under hypoxic conditions NO and superoxide radicals combine to form 'peroxynitrite' which in addition to damaging other biomolecules, damages surfactants.

Lipid peroxidation by OH▪ generates carbon-centred free radicals. Lipid peroxidation is a chain reaction initiated by OH▪ radicals. It abstracts an H atom from a polyunsaturated fatty acid (PUFA) to form H_2O and a carbon-centred free radical (C-R▪).

Apart from the sources of free radical generation described above, ischaemic tissues and endothelial cells also produce reactive radicals. Polymorphonuclear and other white blood cells are also important sources of free radicals where xanthine oxidase and NADPH oxidase catalyse the process of reactive radical formation.

Oxidants damage cells

There are many mechanisms of cell damage (see Table 2).

Almost all the mechanisms mentioned in Table 2 would ultimately lead to the formation of reactive free radicals, which could compound the damaging effects already, initiated.

Table 2. Mechanisms of cell damage

I.	Physical causes	1. Ionising radiation 2. Extreme heat gain or loss 3. Mechanical injury
II.	Biological mechanisms	1. Enzymes 2. Oxidants 3. Cytokines 4. Viruses 5. Immune cell mediated
III.	Chemical	1. Drugs 2. Poisons
IV.	Critical substrate deficiency	1. Oxygen 2. Glucose

Free radicals and biological balance

Reactive radicals play an important role in the maintenance of biological balance. Adult organisms need to strike a balance between deaths of old cells and regeneration of new cells for maintaining homeostasis. The integrity of DNA replication is protected by the telomeres of the cells. When this regulation is disturbed by the free radical-induced signals, the cell dies. Other cells die when they sustain irreparable injury from hypoxia, heat or, ionising radiation. A cell can be killed if it is infected with a virus or other intracellular organism, which destroy the cell or its functional integrity. The host lymphocytes also spot out the infected or deranged cells and kill them.

A multi-cellular organism is an ideal model of a cooperative organization in which, some cells die to preserve the whole organism. Terminally injured and unwanted cells must be eliminated because they consume valuable substrate and nutrient resources.

The nature ruthlessly applies this rule to eliminate terminally ill members of the species too. Conservation of scarce social and material resources and elimination of dangerous toxins and pathogens is only incidental.

Cell death by oxidative stress (apoptosis) and other mechanisms (necrosis)

The mechanisms of cell death from oxidative stress and by other processes are different. In this context, it is important to distinguish between changes that cause death and the changes that occur after death.

Apoptosis

In apoptosis, the death of the cell is programmed by signals, which activate new protein synthesis resulting in depression of vital metabolic pathways. The cell

shrinks and large dense chromatin aggregates form. DNA degrades and chromatin fragmentation occurs in discrete base pairs. Structural integrity of the organelles is maintained and plasma membrane blebbing occurs quite late. When the cell dies, the phagocytes engulf the whole cell or its plasma membrane-bound fragments.

Oncosis

Oncosis (necrosis), on the other hand, is a process of cell destruction by a selective loss of permeability and membrane polarization. In this process, the organelles and cytoplasm swell due to loss of control of electrolytes and water transport. Early plasma membrane blebbing occurs. There is a random breakdown of DNA and chromatin clump formation. Organelles disintegrate, the cell bursts, and the released contents excite inflammatory response.

OXIDATIVE STRESS AND ANTIOXIDANT DEFENCE

Oxidation through the electron transport phosphorylation (or respiratory phosphorylation) of the assimilated food is the main source of energy for all activities of aerobic life. However, this process involves some intermediate steps where oxygen is transformed into a highly reactive molecular form (reactive oxygen molecule) that is capable of reacting with biomolecules and rendering them unsuitable for their specific functions. It is indeed a paradox of nature that oxygen, which is so essential for sustaining aerobic life, may also plays a part in its destruction by becoming a source of reactive oxygen molecules, which damage and destroy essential cell components. The realisation of this fact has induced biologists to look for possible control of this inbuilt process of damage. The natural defences against oxidants have been thoroughly analysed to provide clues to preventive and therapeutic measures against oxidant-induced damage.

What is oxidative stress?

Oxidative stress is the cytologic consequence of a mismatch between the production of free radicals and the available body's defences against them. It may occur when any one, two, or all the following conditions are present,

1. Production of free radicals increases,
2. Scavenging of free radicals is inadequate and,
3. Repair of biomolecules damaged by oxidants is impaired.

Induction of heat shock proteins (HSPs)

Under conditions of oxidative stress, synthesis of HSPs is induced by gene transcription. The heat shock proteins function as molecular chaperons and repair the protein molecules denatured or deformed by oxidants.

Acute phase response

Oxidative stress is also accompanied by another response called 'acute phase response'. Stimulated by IL-1, TNF, and IL-6, a dramatic change in hepatocyte protein synthesis occurs. The hepatocytes 'outpour' c-reactive proteins, fibrinogen, complement, hepatoglobin, ferritin, and plasminogen activator and inhibitor, and caeruloplasmin. Endothelial cells respond by increased production of surface adhesion molecules, selectin, integrin, IL-1, IL-6, IL-8, and PAF. Ferretin mops up free iron, a major facilitator of the production of reactive oxygen species. Ceruloplasmin acts as a free radical scavenger.

Other defences against oxidants comprise neutralization or destruction of these molecules by enzyme-catalysed chemical reactions and will be described later

Oxidant-induced damage to tissues

Oxidants modify an array of biomolecules, and cause DNA nicking leading to genome damage. Cross-linking and degeneration of protein molecules occur. Cell membrane lipid proteins and lipid particles in the blood are damaged. The proteins damaged by oxidants include structural, transport, contractile, receptor and enzyme proteins. G-proteins and glycosaminoglycan molecules are also injured.

Oxidant-induced injury is thus, (1) *direct* biomolecular degradation producing functional derangement and ultimately cell death, or (2) *indirect* via induction of a brisk inflammatory response when cytoinjurious proinflammatory molecules further damage and decimates the cells.

Cytoinjurious cytokines from inflammatory response

After oxidants induce an inflammatory reaction, cyto-injurious cytokines are poured out. These include endothelium- and white cell-derived substances like platelet activating factor (PAF), endothelin, superoxides, plasminogen activator-inhibitors (PAI), TNFα, interleukines (IL-1β, IL-6), complement (Coα), and cell adhesion molecules (CAM)

Injurious actions of proinflammatory humours

PAF causes platelet aggregation, activates polymorphonuclear (PMN) cells, increases capillary permeability, and enhances proinflammatory actions. Endothelin constricts vessels. Superoxides damage biomolecules. TNFα, IL-1β, and IL-6 exert their injurious effects through their proinflammatory actions. Coα excites complements. PAI disturbs coagulation profile and CAM exaggerates cell adhesion. Intravascular thromboses and plugs of cells masses diminish or cut off blood flow leading to hypoperfusion or no perfusion at all. A vicious cycle sets in causing more and more tissue damage.

Cytoprotective cytokines

At the same time when cytoinjurious substances are pouring out and are injuring tissues, some cytoprotective cytokines are also released. These cytoprotective agents are endothelium-derived and are NO, PGI_2 and adenosines. PGI_2 (prostacycline, t½, 1-2 min) causes vasodilatation and stabilizes membranes. It also counteracts platelet and leucocyte adhesion. Nitric oxide (NO) quenches superoxides, produces vasodilatation and stops platelet and leucocyte adhesion. Adenosines have a regulatory action on cell metabolism and produce vasodilatation. They also exert anti-adhesion actions on platelets and leucocytes. Most of the injurious actions of the inflammatory autacoids are thus partly counteracted.

Injury to phospholipid membranes and LDL particles (Fig. 2, 3)

Oxidants injure phospholipid membranes of cell and organelles and disorganise membrane functions. Injury to the lipid particle shell denatures the particle causing its internalisation by the macrophages, which turn into 'foam cells' and deposit themselves onto the intima of the vessels leading to formation of atheromatous plaques. The oxidant-injured LDL particle is more atherogenic. Being more chemotactic, it acts as a ligand to macrophages forming foam cells. It also acts as an immunogen.

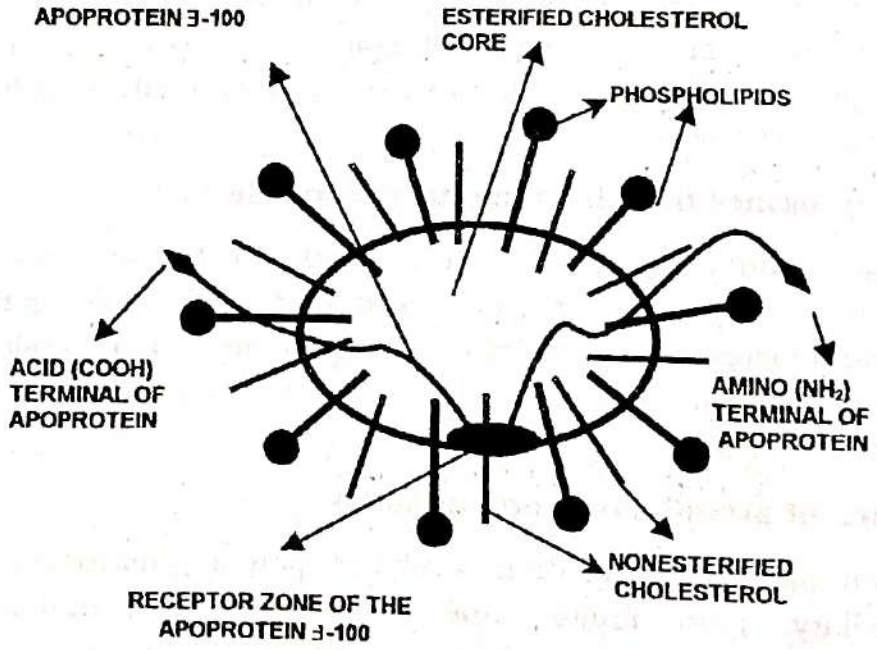


Fig. 2. A typical LDL particle

Clinical conditions attributable to oxidative tissue damage

The list of these conditions is not yet complete and in future, more conditions are likely to be added. These conditions are shown in Table 3.

The concept that oxidants are responsible for irreversible damage in some of the conditions listed in the table has clearly brought out the importance of an early and effective intervention to achieve the goal of prevention/complete recovery.

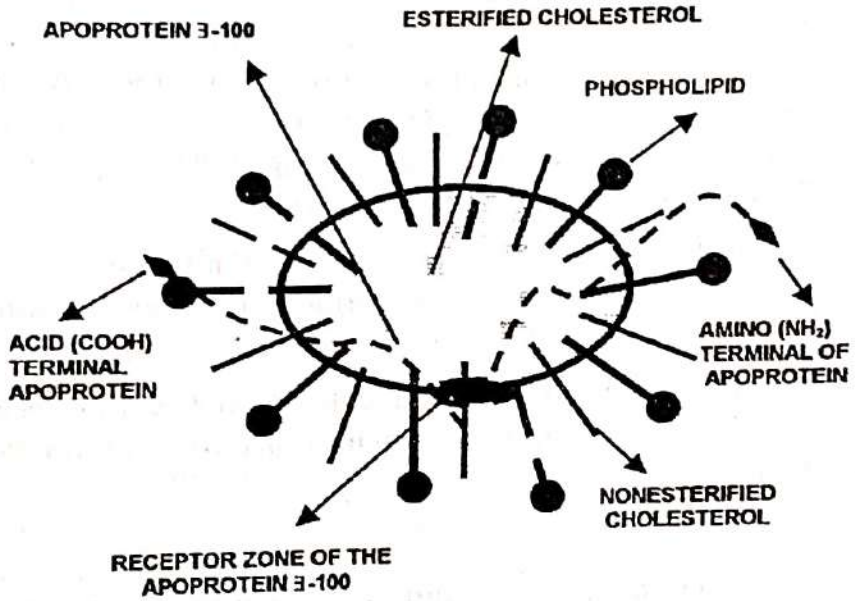


Fig. 3. An LDL particle damaged by oxidants

Table 3. List of clinical conditions attributed to oxidant injury.

Neurodegenerative diseases
Alzheimer's disease
Parkinson's disease
Motor neurone disease
Cerebral atrophy, Seizures.
Damage after strokes
Organic dementia
Kidney diseases
Acute and chronic glomerular disease
Respiratory disease
ARDS
Reperfusion injury
After MI, CVS
Conditions following prolonged Hypoperfusion
SIRS, MODS
Others
Cancer, Aging, Kwashiorkor,
Retinopathies, Cataract,
Hepatocyte damage after CCl_4,
Arthropathies

The natural defences against oxidative stress

There are two very important mitigating factors. One of these is the very short half-lives of most of the oxygen-centred reactive molecules. For this reason they are not able to travel too far from the site of their production to damage molecules that are situated within the confines of plasma membranes of the intracellular organelles. The other is the presence of some on-site enzymes and scavengers that immediately inactivate them. The important ones amongst these enzymes are catalases and superoxide dismutases (SOD). The SOD is a ubiquitous enzyme present in the ECF, cytosol and in the mitochondria.

Haem-oxygenase (HO-I) also has an anti-oxidant role. Metallothionines, glutathione, and uric acid act as sacrificial agents and provide an important indirect protection to more essential biomolecules.

Some enzymes that catalyse reactive oxygen elimination have been produced by human recombinant gene technique but their utility has not yet been verified by extensive clinical trials.

Glutathione

It is a low molecular weight thiol and is a tripeptide of glycine, glutamic acid, and cystine. It reduces lipid peroxidation by H_2O_2 and scavenges other free radicals in conjunction with NADPH. It also regulates the activity of oxidising enzymes in the nervous tissues. An enzyme, glutathione reductase reduces it from its oxidised form to the original state to allow it to resume its anti-oxidant function.

Uric acid

Uric acid serves as a free radical scavenger and plays a role in inhibiting lipid peroxidation and thus maintaining membrane functions.

Trace elements and vitamins—their roles in antioxidant defence

Trace elements

Trace elements like copper, zinc, manganese, magnesium, selenium, and phosphate function mostly as co-factors of enzymes, and their deficiency gives rise to malfunctioning of enzymes involved in the destruction of the reactive molecules. Selenium may be the most important anti oxidant element in the human body. In addition to being essential to the functioning of glutathione peroxidase, it appears to have other more subtle roles. This role may allow initiated cancer cells to repair themselves before division, so that the progeny are not malignant. Some areas in China and New Zealand as a whole are very deficient in selenium and surveys have revealed a high rate of cancer, cardiovascular diseases, asthma, and sudden infant death syndrome (SIDS).

Vitamins

Tocoferol (Vit. E), ascorbic acid (Vit. C), riboflavin, nicotinic acid, thiamine, and carotenes are important antioxidant factors. Vitamin E has a preventive role in membrane lipid peroxidation. Being lipid soluble it is immediately available in the lipoid milieu. Ascorbic acid is water-soluble and is available through out the body water to perform its antioxidant role. This vitamin is a reducing agent and functions to maintain sulphydryl compounds including glutathione in a reduced state. It may directly interact with oxidising substances Vitamin B group elements by acting as coenzymes in many catabolic reactions play a rather preventive role as far as production of oxidants is concerned.

Carotinoids and retinol are indispensable for vision. Vitamin A maintains epithelial integrity, reproductive activity as well as normal cell growth and function. It may reduce oxidative stress by maintaining epithelial integrity and by facilitating repair of damaged molecules and cells. It also regulates the levels of caeruloplasmin, a copper-containing acute phase protein, and an important extracellular antioxidant.

Tannins, catechins, polyphenols, and flavinoids from plant sources act as mild antioxidants. Tea has recently acquired a great reputation as a source of such oxidants.

It should be remembered that antioxidants are like a double-edged sword. For example, vitamin E given in excess may accelerate the peroxidation of lipids, which it is normally supposed to prevent.

Pace of damage by oxidants

The pace of damage may be fast and may lead to acute syndromes of vital organ malfunctions. When the pace is slow, the oxidant-induced damage causes chronic conditions (see Table 3).

Choice of antioxidants is therefore very critical and intake in foods is the safest way of using antioxidants.

Conclusions

Oxidative stress is a pathophysiological process which, often manifest as cell damage in a slow and subtle way but may sometimes result in fast developing fatal syndromes This article has described the chemistry of free radicals and given an account of how they are formed in the human organism. The way in which free radicals cause damage at the cellular level has been presented and the defences available against oxidants has been summarised.

The nature of oxidative stress has been described. Pathophysiology of oxidant-related tissue damage is presented. A list of clinical conditions, where oxidants play an aetiological role is given. The defences against reactive oxygen molecules are discussed. The natural factors that largely mitigate the oxidant-induced injury, and therapeutic aids presently available are described.

An ardent hope that research in reactive radical pathology holds for future is the perspective of prevention of cancer and age-related infirmities. Aldus Huxley in his *Brave New World*, conceived the idea of a 'square survival' in which citizens of a future society lived up to the age of about 70 with little diminution in their health, activity or virility, then died quietly and peacefully in about a week. It is this kind of goal that prevention of oxidative stress is likely to achieve!

Dr. P.J. DESHPANDE MEMORIAL ORATION

Delivered by Dr. Raman Singh, MD (Shalya) on 26.11.2000 at the IVth National Conference of the Association of Anaesthetists of Indian Medicine, UDUPI

ORATOR

Dr. RAMAN SINGH
[B.A.M.S. (Calcutta), M.D. (Ay.) Shalya (B.H.U.)]

Dr. Raman Singh S/o Late Shri Jang Bahadur Singh was born on 5th February, 1952 at Chapra. He worked as a Ph.D. Scholar from October 1983 to March 1987 in the Department of Shalya-Shalakya, B.H.U.

He got opportunity to get training in Laparoscopic Examinations & Operations under Incharge P.P.P. I.M.S, B.H.U. and in Gastroscopy & Colonoscopy – from Kothari Centre of Gastroenterology, Calcutta.

He worked in several Hospitals. He worked as R.M.O., R.S.O., Visiting Surgeon & Incharge, Ano-Rectal Clinic in Mata Anandmayee Hospital, Varanasi. Presently he is working as Visiting Surgeon in (1) J.K. Hospital, Varanasi (2) Gyan Sewa Clinic, (3) Life line Hospital – Sunderpur, Varanasi, (4) Sangam Hospital – Raja Talab, (5) Prateek Hospital - Jansa

Surgical Practice and Ayurvedic Doctors

It will be appropriate to give a brief account of Dr. Deshpande's life history and his main achievements before I start the main oration.

Dr. Deshpande was born on June 11, 1925 at Warora, a village in District Chandrapur (M.S.), situated between Wardha and Nagpur, to Shri Janardan Deshpande, in a farmer family.

After doing his School Certificate, from Nagpur High School Board, he came to Varanasi, joined the Ayurvedic college of Banaras Hindu University, in 1941, and graduated as Ayurvedacharya with Modern Surgery in 1946. His performance during the Ayurvedacharya with Modern Surgery course was brilliant and he always stood first or second in the final examinations with honours in the most of the subjects and many Gold Medals.

After his Housemanship he received special training for 6 months at KEM Hospital under Dr. Phadke and came back to join at Ayurvedic College BHU as Lecturer in Anatomy. He also worked as Emergency Medical Officer, Lecturer in Clinical Surgery and as Anaesthetist, S.S. Hospital BHU until 1951.

Dr. Deshpande then went to Vienna and obtained the degree of Zanguish in Abdominal and Thoracic Surgery in 1953. He received honours in 4 out of 6 subjects in the primary and all 13 special subjects in the final examination at Vienna. He also did a certificate courses in Surgery, Radiology and Neurology and was awarded Za & Th. S., C.S.R. (Vienna).

On return to India, Deshpande Ji again joined BHU Ayurvedic College. In 1961, He went to USA on a US Public Health Scholarship and worked in Kidney and Liver transplant Units at Oregon.

Apart from contributing 200 papers to reputed Journals, Dr. Deshpande has also written many books.

His work on Ano-rectal fistula received international recognition and he received a Hon. Fellowship of the International Academy of Proctology, USA in 1971.

In addition to being a brilliant scholar, Deshpande Ji was a sportsman, athlete, and wrestler, and organized many All India sports meets at BHU.

He was an able administrator and served as the Proctor at BHU campus for many years.

Dr. Deshpande was married to a highly accomplished lady Mrs Padma Deshpande and was the proud father of gifted daughter Purnima who is married to an Engineer, now settled in USA.

Your Association could not have chosen a better person to commemorate by instituting a Memorial Oration.

I would like to express my thanks and gratitude to the organizers of the Sangyaharan Association for the invitation to deliver the second Deshpande Memorial Oration.

The main theme of my talk today would be my personal feelings on how an Ayurvedic graduate should be trained as a postgraduate for practicing Surgery in an effective and safe way.

It is matter of great pride that Surgery was advocated for the treatment of many conditions in the ancient Ayurvedic classics. However, the pride on our glorious past should not hold us away from making our present even more glorious by adopting scientific principles, which have emerged from present day researches in various disciplines of Science. I would like to quote only one instance from our ancient classic, Charak Samhita, where operative delivery of an alive foetus has been advocate only as a last resort after the death of the mother and there being an indication of the foetus being alive by presence of

movement of the womb due to movements of a distressed foetus. A modern day obstetrician would never wait for such a contingency. The diagnostic tools that are available today would enable him to precisely delineate the nature of 'Moodh-garbh' likely to give rise to such a dire desperation and would most likely plan an elective Caesarean section. I admit that such desperate steps had to be advocated and practiced in the olden days because of lack of facilities for diagnosis, anaesthesia, and other facilities for an uneventful operative intervention.

Two developments that have contributed immensely to the safety of surgery as practiced today are the principles of asepsis and anaesthesia. Today it is impossible to think of any surgery worth the name without scrupulous asepsis and relief of pain involved in surgical interventions by providing anaesthesia cover before commencing surgery or other manipulations.

Contribution of modern diagnostic and monitoring tools before, during and often for quite some time after surgery are no less important in assuring a successful outcome of surgical treatment.

It is therefore mandatory that any scheme of training doctors as future surgeons by any Medical Institution of any medical stream must provide the essential background knowledge on which the success of modern surgery depends. This means that the future surgeon will have to learn the principles of human anatomy, physiology, pharmacology, pathophysiology of surgical conditions and the use of modern resuscitative and diagnostic aids.

If an ayurvedic teaching institution undertakes to train its graduates and postgraduates for practicing surgery, it cannot shirk the responsibility of training them in the most appropriate way.

Training an adequate number of doctors as anaesthesiologists in a similar way will also have to be undertaken. For this reasons a full-fledged department of Anaesthesiology will be mandatory. In the absence of a Department of Anaesthesia, no anaesthetic services during the perioperative period will be available and the training of a surgeon will remain incomplete. Existence of a fully developed department of Anaesthesiology is essential not only for providing anaesthesia services and training doctors as anaestheticts but also for a thorough training of surgeons for different surgical disciplines.

Surgery, unlike many other medical specialties is more of an art than just pure science and is learnt only by seeing the great masters performing it and not by reading textbooks and operative manuals. Independent work under supervision of only accomplished surgeons makes a surgeon perfect.

TRAINING FACILITIES FOR A SURGEON

Good surgeon can be trained only in a medical institution, which has a hospital where all broad surgical specialties are present as fully functional units. There should also be a full-fledged anaesthesia department, which not only provides anaesthetic services in the operation theatres but also runs pre anaesthetic check-up clinics (PAC), pain-relief clinics and Intensive care units (ICU) and trains postgraduates in Anaesthesiology.

Duration of Training

This should be at least 3 years after graduation and internship. Opportunity for working as PG senior resident on adequately paid posts after obtaining the postgraduate degree should also be available.

Basic training of the undergraduate courses should comprise, apart from the classical Ayurvedic subjects, a comprehencisve training in modern anatomy, physiology, pharmacology, pathology and bacteriology, medicine, surgery, obstetrics and gynaecology and eye and ENT diseases.

TRAINING AN ANAESTHETIST

The requirement mentioned above should be applicable to the training of an anaesthetist as well with appropriate modifications as applicable to the special requirements of the speciality.

One the institution adopts training and teaching pattern of the type suggested here it will be possible to provide training in many other subjects of surgical sciences like Orthopaedics, Ophthalmology, ENT, etc.

The material of students who are admitted to Ayurvedic institutions is in no way different or inferior to those who are admitted to the so-called modern medical institutions. If they are provided with proper training and teaching facilities, they too can be as bright surgeons as any other graduate of a modern medicine institution. Their knowledge of the basic tenets of ayurvedic system would be of real value to the surgical patients. The highly laudable ethical principles of Ayurved when combined with the principles of safety of modern surgical practice would give this nation the most desirable type of surgeons.

ELIMINATE QUACKERY BY A VIGOROUS MOVEMENT AGAINST INSTITUTIONS AWARDING FAKE DEGREES AND OFFERING POSTAL COURSES

Growth of mushromm institutions without certified basic facilities and well-supervised training and examinations has lowered the quality and standard of medical care throughout this country. This has been even more detrimental to the

growth of Ayurved. Unbridle commercialization of medical education and practice is only leading to half-baked and dangerous medical practitioners of all traditional systems of Medicine.

As practitioners of traditional Indian System of Medicine and responsible members of a democratic Society, it is our duty to eliminate all hazards to the health of our people resulting from quackery. Our people are paying a heavy price as death and permanent disability by falling a prey to the avarice of such practitioners.

Ethics in Ayurveda

Our traditional system of medicine laid great emphasis on thorough learning of the art and science of medicine under the guidance of great masters, practicing the skills under their supervision and then starting independent practice after obtaining RAJAGYNA (राजाज्ञा) (the equivalent of present day REGISTRATION).

There has recently been a great clamor on the promulgation of Consumer Protection Act (CPA) and its application to practitioners of medicine. However, Shushrut clearly states that the King (the present day equivalent of State) had a right to punish the medical practitioner if a patient was harmed through the negligence of a Vaidya. The State had even the right to award a capital punishment to the Vaidya if a patient died as a result his negligence.

There are many other golden principles of ethics scattered throughout the Samhitas, which enjoin on the medical practitioners to set a code of conduct for themselves in the best interest of their patients, to acquire great erudition to be able to defend his methods of management and to be able to impart training and knowledge to whosoever came to seek his advice. Any Vaidya who lacked in these qualities was considered a Shirashshool (शिरश्शूल) (headache) for the society:

वैद्यो तर्क विहीनः नृपतिरदाता निरक्षरो मंत्री

Need for standardization

As you all know, there is no limit to the variety of medical therapeutic regimes mentioned in Ayurvedic classics, their variations according to Doshaj Prakriti of the patients their formulations and their Anupans. In spite of best effort, we do not have an official Materia Medica or a Pharmacopia to control standards of purity, dosage schedules, formulations, and presentations. This task may be formidable but not impossible in this era of incredibly fast electronic tools.

The lack of any standardization of Ayurvedic formulations has resulted in flooding of the drug markets with so-called herbal preparations which can be passed on to the innocent consumer with lofty and unrealistic claims of cures or

engendering superhuman qualities of body and mind. These preparations vary from beauty creams to cancer cures and are marketed under high-pressure advertising through all the media and with literature full of false claims and endorsements by imaginary sufferers obtaining complete cures.

In America, the Food and Drug Authority (FDA) monitors the possible adverse effects of such preparations by maintaining databases and takes reformative action as and when required. Only recently a food supplement manufacturer was taken to task for having incorporated Digitalis lanata plant instead of plantain which gave rise to heart blocks in some consumers.

These preparations give rise to skin allergies, bowel upsets, CNS toxicity and many other undesirable effects, in addition to, in most cases, not producing any extra beneficial effects. How long shall we remain indifferent to this unscrupulous and deceitful act perpetrated particularly in the name of Ayurved?

Research and Evidence-based Medical Practice

The modern medical science is insisting on evidence obtained from properly designed clinical trials before any claim on the efficacy or superiority of a drug is accepted. Multicentric trials and long-term follow-ups are used to prove or disprove acclaimed drug effect and other methods of medical management.

Recently a method of statistical verification called Meta Analysis has come into vogue which examines all or most of the published literature in the world on any particular drug or medical or surgical management and pronounces judgement on the validity of the conclusions drawn from clinical trials.

Ayurved will have to adopt the scientific methodology to verify its claims of an efficacious system of medicine. Our reliance on Agam (आगम) and Anuman (अनुमान) Praman (प्रमाण) to justify almost any thing is not conducive to a scientific spirit.

Jai Ayurveda

Teaching in Sangyaharan

GUEST LECTURE

Delivered by Dr. D.N. Pande, Incharge, Section of Sangyaharan, Institute of Medical Sciences, Banaras Hindu University, Varanasi in the IVth National Conference of Association of Anaesthetists of Indian Medicine at Udupi on 26.11.2000

Whenever history of Anaesthesia started with origin of surgery, to me history of Sangyaharan started with origin of 'Vedana - Pain'. Pain-Vedana is as old as man. Since Sushruta period till today continuous efforts are made to explore the mysteries of Sangyaharan but still today we do not know 'What Sangyaharan-anaesthesia is?' The development of Sangyaharan was started at par with the medical practices. The physicians and surgeons were compelled to thinkover the problem to mitigate the pain-vedana of sufferings. In the very beginning of the first chapter of Sushrut Samhita it is said –

भगवन! शारीरमानसागन्तुव्याधिभिविविधवेदनाऽभिधातौप्रद्रुतान सनाथानप्यनाथव द्विचेष्टमानान् विक्रोशतश्च मानवानभिसमीक्ष्य मनसि नः पीड़ा भवति । तेषां सुखैषिणां रोगोपशमार्थमात्मनश्च प्राणयात्राार्थं प्रजाहितहेतोरायुर्वेदं श्रोतुमिच्छाम इहोपदिश्यमानम्। सु.सं.सू.अ. १-३.

Thus the seed was planted and Acharya Sushruta established 'Shalya Tantra' as 'Pradhanya'. Why ? because of "Ashukriya' – immediate relief.

आशुक्रियाकरणात्, यन्त्रशस्त्राक्षाराग्नि ।
प्राणिधानात्, सर्व तन्त्र सामान्यच्य ।। सु.सु. १/१७

Thus concept of Sangyaharan came in existence to facilitate the surgical procedures.

प्राकशस्त्रकर्मणश्चेस्टं भोजयेदातुरंभिषक ।
मद्यपं पायेयेनमद्यं तीक्ष्णं यो वेदनाऽसहः ।। सू.सू. १७/१२

Further at some places Sangyaharak Drabyas and Vedanaharak Drabyas came in existence with a clear action plan.

मद्यमुष्णं तथा तीक्ष्णं सूक्ष्मं विशदमेव च।
रूक्षमाशुकरं चैव व्यवायि च विकाशि च ।। सु.सुं.उ. ४७/३

Keeping in view all these points an attempt was made in the year 1975 in the prestigious university 'Banaras Hindu University to start teaching-training and research in the field of Sangyaharan by Dr. S.B. Pande the then I/C Sangyaharan section of the Department of Shalya-Shalakya with help of Prof. P.J. Deshpnade and Prof. K. Pandey. In the beginning only one question was being included in the IIIrd paper of M.S. (Ay.) Shalya-Shalakya as optional. One scholar was posted in this speciality for 1½ yrs during his P.G. Course. Further in the year 1985, Sangyaharan was recognized as an speciality and one separate paper was included

as speciality paper. The struggle was continued and in the year 1989, Sangyaharan was recognized as a separate Postgraduate Degree 'M.D. (Ay.) Shalya-Sangyaharan' with full 4 papers, unfortunately the degree was changed as M.S. (Ay.) Sangyaharan in the year 1990. C.C.I.M. also recognized the degree M.S. (Ay.) Sangyaharan.

At present it is being awarded only at Banaras Hindu University. It is the right time and right Juncture to appeal that at least every P.G. Institute where Shalya-Shalakya and Prasuti are already started, should start P.G. in Sangyaharan also.

PRESENT SCENARIO

At U.G. level

C.C.I.M. Directive regarding curriculum clearly compel us to teach U.G. students at least adequate basic knowledge of Sangyaharan.

SHALYA PAPER II - PART B

At P.G. level - M.S. (Ay.)-Sangyaharan

Ist Paper	-	Anatomy and Physiology Related to Sangyaharan
IInd Paper	-	Pharmacology related to Sangyaharan
IIIrd Paper	-	Anaesthesia Techniques
IV Paper	-	'Samhita'-relevant portion to Sangyaharan

At last it is my firm believe that Ayurveda can only survive by updating it's knowledge and to adopt more and more modern technology within it's own principles. Our Ancient Scientist were very much broad minded and they allowed to import new trends into Ayurvedic Systems.

एकं शास्त्रामधीयानो न विद्याच्छास्त्रानिश्चयम्।
तस्माद्बहुश्रुतः शास्त्रं विजानीयाचिकित्सकः।। सु.सू.अ. ४/७

Further,

वाकसौष्ठवेऽथविज्ञाते प्रागालम्ये कर्मनैपुणे।
तदभ्यासे च सिध्दौ च यतेताध्ययनान्तगः।। सु.सू. ३/५६

Practical Application

शास्त्रागुरुमुखोद्गीर्णमादायोपास्य चासकृतः ।
यः कर्म कुरुते वैद्यः स वैद्योऽन्येतु तस्कराः।। सु.सू.अ. ४/८
यथारवरश्चन्दनभारवाही भारस्यवेत्ता न तु चन्दनस्य।
चार्थेषु मूढ़ा रवरवद्बहन्ति ।। सु.सू.अ. ४/४

POST GRADUATE TEACHING

The P.G. Institutions where surgical specialities are running should also hold Postgraduation in Sangyaharan without which no surgical skill can be acquired.

- A separate Department of Sangyaharan with atleast two teachers having P.G. Degree in Sangyaharan is essential.
- P.G. Students in Sangyaharan – Two minimum
- Interns in Sangyaharan
- Equipments
  - An updated O.T. facilities with recovery room
  - Boyles machines
  - Ventilator
  - Pulse oxymeter
  - Cardiac monitor
  - Gases - O_2 & N_2O
  - Equipment for G.A./S.A./E.A.
  - Suction Apparatus
- Anaesthetic Drugs

P.G. in Sangyaharan – be perfect in skill and knowledge of Sangyaharan techniques – G.A./S.A./E.A.

UNDER GRADUATE TEACHING

Every Ayurvedic College

1. Should fallow the curriculum of Sangyaharan prescribed by C.C.I.M.
2. Should acquire basic infrastructure for teaching and training of Sangyaharan.

   A. Teaching staff
      - Atleast one teaching post in Sangyaharan

   C. Equipments
      - Boyles machine
      - Intubating facilities
      - Pulse oxymeter
      - Cardiac monitor
      - Oxygen
      - N_2O
      - Suction apparatus

3. Every U.G. Student should be trained in such a manner that he can perform local analgesia for minor operations and well familiar to other types of anaesthesia technique and their complications.

Researches Done in the Section of Sangyaharan, Institute of Medical Sciences, Banaras Hindu University, Varanasi

Topic	Research Scholar	Supervisor
Ph.D.		
1. Evaluation of some indigenous drugs as adjuvants in anaesthesia (Experimental study)-1977	Dr. SB Pande	Prof. PJ Deshpande Prof. K Pandey
2. Ether anaesthesia in relation to Dehaprakriti-1978	Dr. FS Gundevia	Prof. PJ Deshpande
3. Further studies on Poorvakarma in anaesthesia-1990	Dr. DN Pande	Dr. SB Pande
4. Role of Medhya drug in Sangyaharan (Anaesthesia) - 1994	Dr. KK Pandey	Dr. SB Pande
5. Anaesthesia in relation to Dehaprakriti (Clinical study)-1997	Dr. CK Das	Dr. DN Pande
6. Role of Ashwagandha in Sangyaharan with special reference to regional anaesthesia-1997	Dr. Sanjeev Sharma	Dr. DN Pande
M.D.		
1. Role of certain indigenous compound - Shankhpuspi and Jalanimba as medicant before anaesthesia-1977	Dr. Lalta Prasad	Prof. PJ Deshpande
2. Free fatty acids and blood glucose studies after use of Jalanimba and Shankhapuspi as premedicants-1978	Dr. SN Pant	Prof. PJ Deshpande
3. Studies on certain indigenous drug as anaesthetic agent-1979	Dr. (Km) H Kaur	Prof. PJ Deshpande
4. Studies on role of Pariskyavani as preanaesthetic agent-1980	Dr. Ashok Dixit	Dr. SB Pande
5. Duration of effect of muscle relaxant in different Prakriti-1982	Dr CB Verma	Dr. SB Pande
6. Role of Jalanimba and Parsikyavani as premedication in local anaesthesia-1984	Dr. YP Sham Rao	Dr. SB Pande
7. Role of Jatamansi in anaesthesia-1985	Dr. PK Gulati	Dr. SB Pande
8. Studies on Poorvakarma in relation to anaesthesia-1986	Dr. DN Pande	Dr. SB Pande

Contd...

	Topic	Research Scholar	Supervisor
9.	Studies on Poorvakarma in relation to anaesthesia-1988	Dr. S Bhat	Dr. SB Pande
10.	Clinical evaluation of some indigenous drugs as analgesic in surgical cases-1989	Dr. AK Rai	Dr. SB Pande
11.	Application of anaesthesia in the management of Gudroga with special reference to Ksarsutra-1990	Dr. BC Senapati	Dr. SB Pande
12.	Evaluation of Ashwagandha as preanaesthetic agent-1991	Dr. KK Pandey	Dr. SB Pande
13.	Studies on the alcoholic extract of Ashwagandha (W. Somnifera) as preanaesthetic medication (An experiment and clinical study)-1992	Dr. Sanjeev Sharma	Dr. SB Pande
14.	Studies on halothane anaesthesia in relation to Prakriti-1992	Dr. CK Das	Dr. SB Pande
15.	Comparative clinical study of Brahmi and Ashwagandha as preanaesthetic medication-1993	Dr. Anil Dutta	Dr. SB Pande
16.	Clinical evaluation of Mandukparni (C. Asiatica) in anaesthesia-1994	Dr. SR Manchala	Dr. SB Pande
17.	Clinical studies on an indigenous compound (Nirgundi, Erandmula, Bala) as analgesic in post-operative pain-1995	Dr. RK Ghose	Dr. DN Pande
18.	Biochemical studies on Parasikayavani as premedicant-1995	Dr. K Lal	Dr. SB Pande
19.	Evaluation of Brahmi as preanaesthetic agent in relation to Dehaprakriti-1996	Dr. R Asthana	Dr. DN Pande
20.	Evaluation of Jatamansi as preanaesthetic medication – A biochemical study-1997	Dr. PK Sharma	Dr. DN Pande
21.	Clinical and experimental studies on an indigenous compound (Nirgundi, Erandumula and Bhringraj) as an analgesic-1997	Dr. PS Pandey	Dr. DN Pande
22.	Study on Brahmi as premedication in Ether anaesthesia in relation to Dehaprakriti-1997	Dr. CP Bhusal	Dr. DN Pande

Contd...

	Topic	Research Scholar	Supervisor
23.	Studies on water extract of Ashwaganda as premedicant in epidural anaesthesia-1997	Dr DAR Shakuntala	Dr. DN Pande
24.	Guggulu in the management of postoperative pain-1998	Dr. PR Mishra	Dr. DN Pande
25.	Evaluation of Vaca as premedicant-1998	Dr. SK Mishra	Dr. DN Pande
26.	Study of Parjat in postoperative pain under subarachnoid block-1998	Dr. G Shah	Dr. DN Pande
27.	Studies of Rasna (P. lanceolata C.B. Clarke) in the management of Pain-1998	Dr. SB Chaurasia	Dr. DN Pande
28.	Studies of Parijat in postoperative pain management under Sarvadaihik Sangyaharan-1999	Dr. SK Singh	Dr. DN Pande
29.	Studies of Rasna (Clinical) in postoperative pain management under Sarvadaihik Sangyaharan-1999	Dr. A. Pai	Dr. DN Pande

Ashwino Award 2000 - To Dr. D.N. Pande by Prof. S.R. Kanakraj, Registrar, Rajiv Gandhi University of Health Sciences Karnataka, Bangalore

Meeting No. 35

General Body Meeting dated 25.11.2000

A general body meeting of AAIM was held on 25.11.2000 at S.D.M. Ayurvedic College, Udupi in 'Dhanwantary Hall' at 5.30 p.m. Notice of meeting was read by Dr. P.K. Sharma. To pay homage to the departed soul of Dr. C.M. Tiwari, Dr. R.K. Ghosh and Dr. Ganga Sagar Sah, General body meeting observed 2 minutes silence.

Subject 1.

Confirmation of minutes of the last meetings.

Subject 2.

To read and confirm annual report presented by General Secretary for the year 1999-2000.

Subject 3.

To present and adopt audited account 1999-2000 AAIM & Sangyaharan Sodh.

Subject 4.

To confirm and adopt audited accounts of 3rd National Conference of AAIM held at Pune in December, 1999.

Subject 5.

To consider and approve the establishment of U.P. State branch.

Subject 6.

To discuss resolutions/questions if any.

Subject 7.

Timely subjects with the permission of chair.

RESOLUTIONS

Dr. P.K. Sharma informed the house regarding sad demise of the life members Dr. C.M. Tiwari, Dr. R.K. Ghosh and Dr. Ganga Sagar Sah.

The General body hereby resolve - The AAIM is deeply grieved with sad demise of Dr. C.M. Tiwari, Varanasi, Dr. R.K. Ghosh, Guwahati and Dr. Ganga Sagar Sah, Begusarai and pray that the departed souls may rest into eternal peace.

Secretary (AAIM) informed the house regarding applications of Dr. K.K. Pandey, Dr. P.R. Mishra, Dr. S.K. Mishra, Dr. S.B. Chaurasia and Dr. Ratnesh Asthana

informing their inability to attend subjects committee meeting and general body meeting. The leave of absence was granted to all those members by the house.

Subject 1 - Resolution

Confirmation of the minutes passed by subject committee meeting dated 24.11.2000 & General body meeting 26.11.1999 (Pune).

Proposed by : Dr. D.N. Pande
Seconded by : Dr. P.K. Sharma

Subject 2 - Resolution

Audited account of the 3rd National conference of AAIM at Pune in December, 1999 were discussed by the general body held at Udupi on 25.11.2000. Audited accounts presented by the organising committee be adopted by the general body.

Proposed by: Dr. D.N. Pande
Seconded by: Dr. M. Sinha

Subject 3 - Resolution

This general body meeting held on 25.11.2000 at S.D.M. Ayurvedic College, Udupi hereby resolves to adopt audited accounts of Pune conference and congratulates the organising committee of the Pune conference for presenting and completing the auditted accounts in stipulated time.

General body further resolves that the surplus amount on profit side be distributed amongst central branch and state branch as per the provisions of constitution.

Further it is resolved to direct organising committee to deposit Rs. 50,900/- with Central Council & rest of the amount on profit side in Maharastra state branch account and close the account of conference.

Proposed by : Dr. D.N. Pande
Seconded by : Dr. M. Sinha

Subject 4 - Resolution

AAIM U.P. state branch was formed on dated 15.10.2000 at S.S. Hospital, B.H.U., Varanasi and started functioning at the same time. General body meeting held on 25.11.2000 at S.D.M. College Udupi resolves to approve the establishment of new branch and further resolves that new branch should start functioning as per guidelines of central council and should submit the annual report and auditted accounts with the central council every year.

Proposed by : V.R.C. Sheth
Seconded by : Dr. S. Bhatt

Subject 5 - Resolution

As on today Sangyaharan MD (Ay.) course is being conducted only at B.H.U., Varanasi and so the no. of specialists in Sangyaharan available to serve the institutions of Indian Medicine is for away than sufficient and so the specialist of Shalya Shalakya and Prasuti Tantra are deprived from getting anaesthesia services in their professions.

Taking account of this fact the general body meeting held on 25.11.2000 at S.D.M. Ay. College Udupi resolves that efforts should be made at different institutes, Director of Ayurveda of concerned states and CCIM to start with degree and diploma courses in Sangyaharan as early as possible with priority.

Proposed by : Dr. Borse N.V.
Seconded by : Dr. Shendye V.N.

Subject 6 - Resolution

Papers for the late Pt. Ram Autar Pande memorial award were invited by the committee. Since no paper was received by the committee in deputed time, decided not to declare this award.

This general body meeting held on 25.11.2000 at S.D.M. College Udupi resolves that the above mentioned award be declared from amongst the papers presented during the Udupi AAIM conference scientific sessions.

Proposed by : Dr. Akbar Ali
Seconded by : Dr. B.N. Deshpande

Timely subject - About Ashwinau Award

Report of the committee for the recipient of Ashwinau award was considered by the general body in the meeting held on 25.11.2000 at S.D.M. College, Udupi.

General body resolved to accept name of Dr. S. Bhatt suggested by the committee for the Ashwinau award for the year 2001.

Proposed by : Dr. N.V. Borse
Seconded by : Dr. V.N. Shendye

Passed unanimously.

Meeting was concluded with the vote of thanks by Dr. P.K. Sharma.

(Dr. P.K. Sharma)
Secretary

(Dr. D.P. Puranik)
President

ASSOCIATION OF ANAESTHETISTS OF INDIAN MEDICINE

Annual Report 1999-2000

CONFERENCE

The association hold IIIrd National Conference at Pune on 25-27 Dec. 1999 with a great success and attracted world inteligentia towards it's activities. The number of Life Bonafied members were raised upto 48 and Associated life members upto 71 till date. The E.C. of Association hold Sangyaharan Day on 6th Feb. 2000 at Varanasi and Pune. At Varanasi a workshop on Neonatal Resuscitation was organised on the occasion of Sangyaharan Day whereas as a guest lecture programme was organised at Pune. Many other clinical meetings were organised at Varanasi.

WORKSHOPS

Two workshops on C.C.P.R. each of 15 days were arrange at Varanasi under the section of Sangyaharan, Department of Shalya Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi - from 1st March to 15th March, 2000 and 1st April to 15th April, 2000. The lectures and demonstrations were arranged by the section of Sangyaharan. The Participants participated actively in practical and theoretical classes during their 15 days stay at Varanasi. An inaugural and valedictory functions were organised at beginning and at the end of each course. The certificates were distributed to each participants by the hands Director, Institute of Medical Sciences, & Dean Faculty of Ayurveda, Banaras Hindu University, Varanasi.

FELICITATIONS

Prof. A. Lal, Prof. P.V. Tiwari, Prof. L.M. Singh, Prof. G.C. Prasad and Dr. S.B. Pande were felicitated by the association at the occasion of 'Sangyaharan Day' - 6th Feb. 2000.

AWARDS

The prestigious Award of the Association, 'Ashwinau Award' was given to Prof. D.P. Puranik on 25th Dec. at Pune at the occasion of IIIrd National Conference. Best Paper Award in the memory of Late R.A. Pande was given to Dr. C.K. Dash in the IIIrd National Conference at Pune.

ORATION

Dr. Bhasker Govind Ghanekar memorial and Prof. P.J. Deshpande memorial orations were organised at Pune at the IIIrd National Conference.

MEETINGS

Six executive meeting were arranged during this year and many decisions were taken in the benefit of Association.

NEW BRANCHES

Two new State Branches - Uttar Pradesh and Maharastra were established this year.

APPROACH

Efforts were made for creation of separate departments of Sangyaharan at different places in India.

FUTURE PLAN

1. to establish new branches of Association at different States.
2. to create P.G. Course in Sangyaharan Speciality in every P.G. Institutes.
3. to establish departments of Sangyaharan in every Ayurvedic Colleges.
4. to arrange C.M.E. programmes and workshops at different centres of Association.

P.K. Sharma
Secretary, AAIM

Delegates sitting in Hall in the Inaugural Function of IVth National Conference of A.A.I.M. at S.D.M. Ayurved College, Udupi

SANGYAHARAN SHODH

Annual Report 1999-2000

The editorial board of the journal continued it's publication regularly without any break and tried to regulate it's sources also. The Vol. 3 No. 1 and 2 were published in time - Feb. & August. The advertisements from M/s Him Ratan Oil, Pfizer India Ltd., Shiv Ayurvedic Pharmacy, Ayush Pharma, B. Brown, The Himalaya Drug Co. and Elan Pvt. Ltd. were received and inserted in the journal and thus raised fund for publication of the journal.

The libraries of the fallowing institutions agreed to be our subscriber

1. I.M.S., B.H.U., Varanasi
2. S.D.M. Ay. College, Hassan

By the means of journal, different issues regarding development of Sangyaharan speciality were raised through it's Editorial Columns.

The Journal Editorial Board tried to improve the quality of publication by adding association activities and researches.

D.N. Pande
Chief Editor

Vote of Thanks by Dr. S. Bhat, Organising Secretary, IV National Conference of A.A.I.M. at S.D.M. Ayurved College, Udupi

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 31.03.2000

Receipt		Amount (Rs.)	Payment		Amount (Rs)
To	Opening Balance		By	Audit Fee	750.00
	Bank Bal.	5,976.50	By	Photostat-Stationery	
To	Cash	349.86		Printing	2,401.00
			By	Postage Expenses	567.00
To	Membership Fees	14,555.00	By	Telephone	332.00
To	Ashwino Award	5,000.00	By	Momento & Pins	3,175.00
To	Donation	50,000.00	By	H.D.F.C.	50,000.00
To	Selling of Colour Pins	500.00	By	Bank Charges	35.00
To	F.D. Intt.	862.00	By	Cash at Bank	15,034.80
			By	Cash in Hand	4,947.06
		77,243.86			77,243.86

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: 24.07.2000

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 AT 31.03.2000

Liabilities		Amount (Rs.)	Assets	Amount (Rs)
Capital Fund:			Investment & Deposit:	
Opening Balance	58,521.85		F.D. for AAIM	6,000.00
Membership fee	14,555.00		F.D. for AAIM	21,000.00
	73,076.85		F.D. for AAIM	15,000.00
Add: Excess of			F.D. for G.B. Oration	5,000.00
Income over Exp.	49,100.50		H.D.F.C.	50,000.00
		1,22,177.35	F.D. for Ashwinau Award	6000.00
Unsecured Loans:			Loans & Advances:	
Conference Account		59,642.51	Loans To Conference	3,000.00
			Fund T/For Op. Bank A/c Journal	10,838.00
			Fund T/For F.D. in favour of Sangyaharan Shodh Journal	45,000.00
			Current Assets:	
			Cash at Bank	15,034.80
			Cash in Hand	4,947.06
		1,81,819.86		1,81,819.86

Place : Varanasi
Dated: 24.07.2000

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 FROM JANUARY 1998 TO 31/03/2000

Receipt		Amount (Rs.)	Payment		Amount (Rs)
By	Loan from AAIM	10,838.00	To	Conveyance Expenses	70.00
By	General fund from AAIM	55,838.00	To	Printing Expenses	33,962.50
By	Ashwino Award AAIM	1,100.00	To	Photostat Charge	222.00
By	Membership Fee	2,000.00	To	Postage Expenses	779.00
By	Intt. on S/B A/c	886.25	To	Stationary	2,164.00
By	Intt. on F.D.R.	7,762.50	To	Loan Return from AAIM	10,838.00
By	Advertisement	41,750.00	To	Fixed Deposit	66,000.00
			To	Bank Charges	90.00
			To	Ashwino Award	1,100.00
			To	Registration Charge	1,443.00
			To	Bank Balance	3,365.25
			To	Cash in Hand	121.00
		1,20,154.75			1,20,154.75

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: 24.08.2000

For A.K. Keshary & Associates
Chartered Accountants

Sd/-
(Arvind Kumar Keshary)
Proprietor

PROCEEDINGS

SECOND SANGYAHARAN DAY CELEBRATION

6th February 2001

Second Sangyaharan Day Celebration was organized at 'Dhanwantary Hall' of Department of Shalya-Shalakya, Faculty of Ayurveda, Banaras Hindu University, Varanasi on 6th February 2001 at 9.00 am.

The delegates were already registered one day prior on 5th February but due to heavy rush for registration it was continued on 6th February also. All the delegates were served with a copy of programme and folder sponsored by B. Braun Medical India Ltd. Pen and pad was served by Neon Pvt. Ltd. to the delegates with kit.

9.00 am

Inaugural function

The function was conducted by Dr. K.K. Pandey, Vice-president of the association. The function began with kulgeet followed by garlanding to Pt. Madan Mohan Malviya ji. Prof. K. Pandey, emeritus Prof. Anaesthesiology, Dr. M. Sahu, Head, Prof. J.K. Ojha, Dean, Prof. Adhya Prasad Mishra, Chief quest – Vice Chancellor, Mahershi Mahesh Yogi Vaidic University, Jabalpur, Prof. V.P. Singh, Director Institute of Medical Sciences, Dr. S.B. Pande Patron AAIM was on the dais. The function started with Kulgeet fallowed by garlanding to Pt. Mahamana Madan Mohan Malviya ji. The function was inaugurated by Prof. V.P. Singh with lightening the lamp, Prof. Adhya Prasad Mishra Chief guest with all the dignitaries on the dais joined their hands in lighting of the lamp. A warm welcome was given to all the guests by presenting garlands. A warm welcome was given to all the dignitaries on the dias and off the dias by Dr. M. Sahu, H.O.D. Shalya-Shalakya.

U.P. State President Dr. Sanjeev Sharma presented the prospects and plans of the state branch in his address. A brief introduction of Sangyaharan day and about Sangyaharan section was given by Dr. D.N. Pande, Incharge Section of Sangyaharan and Sr. Vice-president of AAIM central body. He reminded the authorities to fulfill their declarations of previous Sangyaharan Day. He very earnestly requested to upgrade the section of Sangyaharan as a full fledged Department and to raise the number of Junior residents for Sangyaharan speciality. He also appealed to help the peoples of Gujrat by every means.

Dr. K.K. Pandey introduced about the workshop programmes in detail. He also desired to extend the programme frequently and appealed to provide finance for purchase of 'Dummy' for this workshop.

Presidential speech was delivered by Prof. J.K. Ojha. Prof. Ojha appreciated the academic activities of section of Sangyaharan. He said that it is true that this section is doing a very good work even with inadequate hands. He assured to provide facilities to the section.

Dr. S.B. Pande, Patron-AAIM blessed the members of Association and specially expressed his pleasure regarding the contributions of section of Sangyaharan. He requested to the Director – Prof. V.P. Singh to help the staff members of section of Sangyaharan and to provide adequate staff and finance.

The Director, I.M.S. – Prof. V.P. Singh Director I.M.S., assured the members of AAIM to take firm action in the direction of development of section of Sangyaharan. He also declared to provide One Lakh rupees for workshop on C.C.P.R.

In the end of the inaugural function all the dignitaries on the dais were honoured by presenting a memento of Association. All the executive members of AAIM central body and U.P. State executive body also received a memento of Association by the hands of chief guest Prof. Adhya Prasad Mishra Ji – Vice Chancellor – Maharshi Mahesh Yogi Vaidic University, M.P.

At last vote of thanks were raised by Dr. P.R. Mishra, Secretary, U.P. State branch – AAIM.

Master of ceremony Dr. K.K. Pandey declared the function close after the National Anthem with permission of chair.

11.00 am

High tea was sponsored by B. Braun Medical India Ltd. to all the guest and delegates.

11.30 am

First guest lecture on 'Practitioners of Ayurveda and Consumers Act' was delivered by Prof. M.P. Singh, Faculty of Law B.H.U. Prof. K. Pandey Chaired the session and presented a memento to Prof. M.P. Singh in the end of the lecture. The IInd guest lecture was delivered by Prof. T.K. Lahiri, Head, Department of Cardiothoracic Surgery, Institute of Medical Sciences, Banaras Hindu University on 'Cardiac emergencies'. A memento was presented to him also in the end of his lecture by Prof. K. Pnadey, Chairman of the scientific session.

Both lectures were highly appreciated by delegates of the 'Sangyaharan Day'

1.00 – 2.00 pm

Lunch packets were served to all the delegates and guests. Every one enjoyed the delicious Lunch.

2.00 – 4.00 pm

Workshop on Neonatal resuscitation was conducted by Prof. B.D. Bhatia and Dr. Ashok Chaudhary. Dr. R.D. Sharma chaired the session. A practical demonstration was done and was appreciated by the delegates. In the end of the demonstration Dr. R.D. Shrama presented a memento to Dr. Bhatia and Chaudhary on behalf of Association Dr. Sanjeev Sharma presented a memento to Dr. R.D. Sharma.

In this way the one day programme was finished with distribution of certificate to the delegates by the hands of Dr. J.S. Shukla, Department of Shalya, Ayurveda College S.N.S.U. Varanasi.

Prominent news papers gave a good flash to Sangyaharan days function.

This grand occasion was organized by the joint efforts of Section of Sangyaharan, Department of Shalya-Shalakya and U.P. State Branch, AAIM with a great success.

Dr. P.R. Mishra
Secretary
U.P. State Branch
AAIM

Dr. D.N. Pande
Incharge Section of Sangyaharan
Department of Shalya-Shalakya
and Sr. Vice-president AAIM.

New Members

List of Members in Continuation of Previous List (August 1999, Vol. 2, No. 2)

Life Bonafied Members

S/46 Dr. R.K. Jaiswal, 30A, Canal East Road, Calcutta - 700011

S/47 Dr. Anil Dutta, Lecturer, H.P. Govt. Institute of P.G. Education and Research in Ayurveda, Paprola, Kangara – 176115

S/48 Dr. S.R. Manchala, S/o Shri M. Kotaih, I.T.I., Road, Singarayakanda, Distt. Prakasham, AP-523101

S/49 Dr. Rajesh Singh, S/o Shri V.B. Singh, Vill. – Mirzapur, P.O. Mishrowali (Via-Chiraiya Kote), Distt – Mau – 276129 (U.P.)

Life Associate Members

A/36 S.S. Dwivedi C/o Dr. R. Asthana, PNB Building, Barhalganj, Gorakhpur (U.P.)

A/37 Sheoji Gupta, 147, Malti Vila, Saket Nagar Colony, Varanasi

A/38 Dr. Omkar P. Kajale, P.O. – Manchar, Distt. – Pune – 410503

A/39 Dr. Ashish Kumar Singh, Narayanpur, Mirzapur, UP

A/40 Dr. Shah Kishan Vithal Das – 425/47, Vikas Apartment STMV Colony, Mukund Nagar, Gultekodi, Pune – 37

A/41 Dr. Jyoti Ranjan Pattnayak C/o Late Utsavananda Nagar Vill. Dashipur, P.O. Balana via Marshaghai, Distt. Kendrapara, (Orissa)

A/42 Dr. Wable Umakant K., 149 Ananda Nagar, Sangavi, Pune – 27

A/43 Dr. Suresh Ram Pathak, B-34/143, A-B-1 Gayatri Nagar, Sukulpura, Sarai Nandan, Varanasi – 221005

A/44 Dr. Pamela F. Fred Erickson, P.O. Box – 59346, San Jose, California, USA 95159-0346

A/45 Dr. Shakti Vinay Shukla, 56, Manas Nagar Colony, Durgakund, Varanasi, Ph. 314586

A/46 Dr. K.N.P. Raju, Reader in Remote Sensing, Department of Geography, Banaras Hindu University, Varanasi, Ph. 319678

A/47 Mr. Rajeev Sareen, B-26/58, Nawabganj, Varanasi

A/48 Dr. Raman Singh, 218-B, Bridge Enclave, Sundarpur, Varanasi

A/49 Dr. Sant Kumar Singh, Jagardeopur, Kashipur, Varanasi – 221311

A/50 Dr. S.P. Verma, State Ayurvedic Dispensary, Narayanpur, Mirzapur

A/51 Dr. Ashok Kumar Sonker, Near Police Station Maduadih, Maduadih, Varanasi, Ph. 373186

A/52 Dr. Anil Kumar Yadav, S/o Shri R.S. Yadava, Vill.-Garbi, Baragaon, Firojabad – 205130

A/53 Dr. Arun Kumar, House No. S-9/62-A, Nai Basti, Pandeypur, Varanasi – 221002

A/54 Dr. U.S. Pandey, B-121/6, Thakur Bhawan, Kamachha, Varanasi – 5, Ph. 361259

A/55 Dr. M.P. Singh, Jeewan Jyoti Hospital, Indira Nagar, Kalagarha Road, Dhampur (Bijnor), UP

A/56 Dr. R.N. Rai, Mahadeo Niwas, Gramin Bank, Near Mandi, Parikhora, Ballia, UP

A/57 Dr. S.P. Gupta, Gudari Bazar, Chitbara Gaon, Ballia, UP

A/58 Dr. P.K. Singh, Prashant Hospital, Bhojpur, Ramnagar, Varanasi

A/59 Dr. A.N. Sharma, Jairampur, Bhangawal, Hajipur Baresar, Ghazipur, UP

A/60 Dr. Govind Vitthal Rao Shinde, M.O., C.S.M.S.S. Ayurveda College, Kanchanwadi, Paithan Road, Aurangabad, Maharastra

A/61 Dr. Ramesh Kumar Singh, C/o Shri Ram Chandra Tiwari, Near Mazid Chowk, Ramna, Muzaffarpur, Bihar

A/62 Dr. Marathe Seema Shyam, G-19, Budhwarpeth, Above Kohinoor Store, Pune – 411002

A/63 Dr. (Mrs.) Alka Dileep Puranik, 107/19, Erandwana, Bharati Niwas Society, Pune – 411004

A/64 Dr. Fareed Ahmad, Shefa Mahila Aspatal and Surgery Centre, Belariaganja, Distt. Azamgarh (U.P.)

A/65 Dr. Awadeshi Kumar Singh, C/o Shri Atma Ram, Vill. Dakauli, P.O. Khurda, Distt. Hardoi – 241305

A/66 Dr. S.N. Yadav, Gandhuvar, Azamgarh, UP

A/67 Dr. P.N. Rao, Principal, SDM Ayurveda College, Hasan, Karnataka

A/68 Dr. Shailaja, Lecturer, SDM Ayurveda College, Hasan, Karnataka

A/69 Dr. Ravi Shankar Pervaje, Main Road, Puttur, Karnataka

A/70 Dr. P.N. Mohan Kumar, Vinayak Ayurvedic Nursing Home, Pallisery, P.O. – Trichur, Kerala, Ph. 0487–342789, 344789, 346789

A/71 Dr. Baspin Kumar, Indraprastham, VALAPAD, P.O. – Trissur, Kerala – 680567, Ph. 0487-391310

A/72 Dr. Pawan Kumar Sharma, C/o Sharma Katra, Wireless Mora, Dildar Nagar, Ghazipur (U.P.)

A/73 Dr. N.S. Bharadwaj, House No. 2504, Sector 19-C, Chandigarh

A/74 Dr. Narayan S. Jadhav, Ayurveda Medical College & Hospital, UDGIR, Distt. – Latur – 413517 (M.S.)

A/75 Dr. Om Prakash Singh, J6/7 Jaitpura, Varanasi (U.P.)

A/76 Dr. Shri Prakash Singh, Dhanwantari Hospital, Garaundi, P.O. – Adalhat, Distt. – Mirzapur (U.P.)

A/77 Dr. Khurshid Ahmad, Jeewan Nursing Home, Chattarpura, Mau – 275 101 (U.P.)

Evaluation of Intrathecal Ketamine

PANDE D.N.* and SINGH HARI OM**

INTRODUCTION

Ketamine is a dissociative intravenous anaesthetic agent which has many favourable characteristics e.g., amnesia, analgesia and bronchodilation. The use of ketamine as sole anaesthetic agent is complicated by unpleasant emergence phenomena and sympathomimatic effects. The sympathominatic effects are due to a centrally mediated release of catecholamines. In addition, circulating catecholamine levels are increased by an inhibition of reuptake. Central inhibition of catecholamine reuptake also contribute to ketamine cardiovascular stimulation. After L.S.A.B. due to sympathetic blockage vasodilation occurs which leads to hypotension. Thus cardiovascular stability is effected badly. To counter this problem many efforts have been made. This study is also an effort in the same line with some other benefits.

AIMS AND OBJECTS

- To minimize the C.V.S. unstability due to L.S.A.B.
- To prolong the duration of anaesthetic effect
- To reduce the anaesthetic dose
- To reduce onset time of local anaesthetic

MATERIALS AND METHODS

No. of Patients	:	40
Groups	:	I – Control (n=20); II – Trial (n=20)
Types of operations	:	L.S.C.S., Abd. Hys., Vag. Hys. and Append
Premedication	:	Inj. Glycopyrrolate 2 mg I.M., 1 hr before operation (both groups)

ANAESTHETIC TECHNIQUES

- S.A. with – Bupivacaine 0.5% - 2.5 ml at L 3-4 with 25 SWG needle – Ist group.
- S.A. with – Bupivacaine 0.5% - 2 ml + ½ ml Ketamine (preservative free) 25 mg at L 3-4 with 25 SWG needle – IInd group.

ASSESSMENT PARAMETERS

- Pulse rate, B.P., R.R., Nausea and Vomiting at three level – Preanaesthetic, Anaesthetic and Postanaesthetic periods.

---

* Sr. Lecturer & Incharge, Section of Sangyaharan, Department of Shalya-Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

* Junior Resident, Section of Sangyaharan (Anaesthesiology), Department of Shalya Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

- Onset of drug action and duration.
- Analgesic requirement time.
- Effects on undesirable effects – hallucination (Ketamine induced)

Table 1. Demographic Data.

	P value	Group I (n=20)	Group II (n=20)
Age (Y)	> 0.05	30.45 ± 3.50	31.50 ± 3.40
Sex (M:F)		8:12	9:11
Wt. (kg)	> 0.05	54.35 ± 3.85	55.05 ± 5.67

Table 2. Haemodynamic Response.

Group	Parameter	Before Anaesthesia	During Anaesthesia	Post Anaesthesia
I	Pulse rate	90.00 ± 6.86	96.10 ± 6.08	96.20 ± 6.86
	M.B.P.	96.06 ± 7.39	90.60 ± 6.57	90.66 ± 7.30
	Res. Rate	19.50 ± 1.07	18.00 ± 2.04	19.01 ± 1.95
II	Pulse rate	88.40 ± 4.98	22.33 ± 9.12	93.40 ± 11.1
	M.B.P.	96.13 ± 5.52	95.24 ± 8.22	96.22 ± 8.23
	Res. Rate	19.66 ± 1.27	19.22 ± 1.33	19.55 ± 1.47

Table 3. Statistical Comparison within the Group

Group	Pulse rate	M.B.P.	Respiratory Rate
I	Significant	Significant	Not Significant
II	Not Significant	Not Significant	Not Significant

Table 4. Statistical Comparison between the groups: I vs II

	A	B	C
Pulse rate	Not Significant	Significant	Significant
M.B.P.	Not Significant	Significant	Significant
Respiratory Rate	Not Significant	Not Significant	Not Significant

Table 5. Desirable and Undesirable effects.

Effect	Group I		Group II	
	P	%	P	%
Nausea	3	15	Nil	-
Vomiting	2	10	Nil	-
Halucination	0	0	Nil	-
P.O. Headache	1	5	Nil	-

Table 6. Effects on Local anaesthetic

Parameter	Group I	Group II	P value & Remarks
Onset (min.)	11.52 ± 2.13	8.22 ± 2.11	< 0.05 Significant
Duration (min.)	130 ± 12.17	149 ± 14.23	

Table 7. Analgesic Requirement time (min)

Group	Mean time (min)	P Value	Remarks
I	55 ± 19.98	I vs II < 0.001	Highly Significant
II	248 ± 49.63		

CONCLUSION

- Intrathecal use of preservative free Ketamine is helpful to minimize the C.V.S. alteration caused by L.S.A.B.
- It also prolongs the anaesthetic response, reduces the total dose of local anaesthetic (Bupivacaine hydrochloride) and reduces the onset time also.
- Ketamine induced hallucination is not found.
- Analgesic requirement in postanaesthetic period is also reduced.
- Thus ketamine may be used safely intrathecally with heavy local anaesthetic and benefits of spinal analgesia can be achieved safely by using minimum anaesthetic.

REFERENCES

1. Reich DL, Silvay G. Ketamine – an update of the first twenty five years of clinical experience. Can. J. Anaesth. 1989; 36: 186-97.
2. White PF, Way WL, Trevor AS. Ketamine – its pharmacology and therapeutic anaesthesiology. 1982; 56: 199-36.
3. Ivankovich AD, Miletich DJ, Reimann C, et al. Cardiovascular effects of centrally administered Ketamine in goats. Anesth. Analg. 1974, 53: 924-33.
4. Lundy PM, Lockwood PA, Thompson G, Frew R. Differential effects of Ketamine isomers on neuronal and extraneuronal catecholamine uptake mechanism. Anaesthesiology. 1986; 64: 359-63.
5. Sarojini Jagdish. Postoperative pain management – Pharmacological methods. XII National Conference of R.S.A.C.P., October, 1997, Souvenir. p. 7.

6. Erando CL, et al. Subarachnoid Ketamine in Swine – Pathological findings after repeated doses : acute toxicity study. Anaes. Pain Med., March-April, 1999, 24(2): 146-52.

7. Yen FC et al. Low dose Ketamine and Midazolam as supplements for spinal anaesthesia. Acta Anaestheial Sin., March 1999, 37(1): 15-9.

8. Stotz M et al. Histological findings after long term infusion of intrathecal Ketamine for chronic pain. J. Pain Symptom Management, September 1999, 18(3): 223-8.

9. Errando CL. Spinal toxicity of drugs: some specifications about Ketamine. Anesth. Anal. January, 2000, 90(1): 227.

10. Sekaran NK et al. Spinal Ketamine anaesthesia for hemithyroidectomy. Can. J. Anaesth. May, 1996, 43(5, Pt. I): 537-8.

Evaluation of Rasna (*Pluchea ianceolata* C.B. Clarke) under Sarvadaihik Sangyaharan (General Anaesthesia) (A Clinical Study)

PAI A* and PANDE D.N.**

ABSTRACT

Forty adult patients for elective appendicectomy under general anaesthesia were randomized to two regimes for premedication. Patients in group I received diclofenac sodium 50 mg orally and those in group II received Rasna 500 mg orally. Haemodynamic parameters, body temperature and psychological effects were recorded at baseline, after ninety minutes of premedication and in the immediate postoperative recovery period. There were no significant intergroup differences in demographic or baseline haemodynamic variables. The haemodynamic parameters were stable in patients who had received Rasna, had significantly smooth induction and recovery. There was no difference between groups with respect to body temperature. No nausea and vomiting after premedication was reported.

KEY WORDS

INDUCTION : anaesthesia; ANAESTHETICS, General : Ether, Nitrous oxide; MUSCLE RELAXANTS : Vecuronium bromide, suxamethonium; Vata Shamaka; Rasna; Diclofenac Sodium.

INTRODUCTION

Successful anaesthesia begins long before the induction of anaesthesia by preparing the patient both mentally and physically for smooth induction and recovery. The usual preoperative and postoperative medicants like narcotic analgesics produce nausea and vomiting as side effects. This study was undertaken to evaluate RASNA (an indigenous drug) as a premedicant and to find out side effects if any.

RASNA (Pluchea lanceolata C.B. Clarke) belongs to the family compositae and is found in abundance in Punjab, Bengal and upper gangetic plains of India. The ethanolic and aqueous extracts of Rasna potentiated pentobarbital induced hypnosis in rats (Prasad et al, 1965). Its anti-inflammatory activity has been proven in experimental models (Singh and Chaturvedi, 1965).

* Jr. (III), Section of Sangyaharan, Department of Shalya-Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

** Sr. Lecturer & Incharge, Section of Sangyaharan, Department of Shalya-Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

MATERIAL AND METHOD

Drug

The drug was used in the form of ghansatwa of all the parts of the plant except the roots. The dose was determined according to the dose of churna recommended for a healthy individual as per Ayurvedic literature based on the yield of ghansatwa.

Calculated dose of ghansatwa = 500 mg
The control drug used was diclofenac sodium 50 mg in the form of tablets.

Method

Forty adult patients of either sex undergoing elective appendicectomy, participated in this study. Patients were excluded from the study on account of medical diseases, recorded allergy to NSAIDs, known abuse of alcohol or sedatives. Informed consent was obtained from each patient. They were randomly allocated in two groups of twenty patients each.

In group I (n=20), premedication consisted of diclofenac sodium (50 mg) orally at 9 pm on the previous day of surgery and at ninety minutes before surgery with an ounce of plain water. All the patients in both the groups were premedicated with intramuscular glycopyrrolate 0.2 mg one hr before the start of anaesthesia to reduce the salivary secretions which are often troublesome during general anaesthesia. Patients of group II (n=20) received Rasna ghansatwa (500 mg) and glycopyrrolate 0.2 mg in the same schedule.

After one hr of premedication, haemodynamic variables which included heart rate (HR), mean blood pressure (MBP) and the body temperature were recorded in both the groups. Incidence of sedation, apprehension, nausea and vomiting was also recorded.

Anaesthetic Techqnique

Uniform anaesthetic technique was employed in both the groups. Anaesthesia was induced with a mixture of 67% nitrous oxide with oxygen and ether. When the patients entered the 1st plane of surgical anaesthesia, the patients were given succinylcholine 1.5 mg. Kg^{-1} to facilitate tracheal intubation. Anaesthesia was maintained N_2O – O_2 with assisted ventilation. The neuromuscular block was maintained with vecuronium bromide 0.1 mg kg^{-1} which was subsequently reversed at the end of surgery with neostigmine 2.5 mg and glycopyrrolate 0.4 mg.

During anaesthesia, the mean blood pressure and the heart rate were monitored every fifth minute and more often when necessary. Postoperatively the patients were observed for the type of recovery (smooth/struggleful). The mean blood pressure and heart rate were recorded to compare with the baseline values.

The results were analysed for statistical significance using students 't' test.

OBSERVATION AND RESULTS

The two groups were comparable with regard to age, sex, weight, type of operation performed and duration of anaesthesia (Table 1).

Table 1. Patient's data. Mean (SD), 'P' values for analysis of variance.

Parameters	Group I	Group II	P
No. of patients	20	20	
Sex (M:F)	9:11	10:10	
Age (years)	29.5 (6.40)	30.6 (6.32)	NS
Weight (Kg)	53.70 (2.98)	53.20 (2.94)	NS
Duration of Anaesthesia (min)	54.45 (6.50)	52.40 (5.98)	NS

NS (Non Significant)

There were no differences among groups in baseline values of heart rate, mean blood pressure and temperature. There was significant increase in the heart rate and mean blood pressure in the patients of group I after premedication. There was significant increase in the temperature after premedication in the patients of group I (Table 2).

Table 2. Heart rate (HR min^{-1}) Mean blood pressure (MBP) (mmHg), temperature (°F) as baseline and after 90 min. of premedication; Mean (SD), P values for analysis of variance.

Parameters	Group I	Group II	P
HR baseline	88.6 (6.62)	90.0 (5.46)	NS
HR after 90 min of premedication	95.1 (5.74)	93.2 (7.20)	S
MBP baseline	90.70 (6.56)	90.35 (6.26)	NS
MBP after 90 min of premidication	93.50 (5.68)	91.75 (4.82)	HS
t° baseline	98.86 (0.17)	98.83 (0.16)	NS
t° after 90 min of premidication	99.40 (0.49)	99.02 (0.28)	S

NS (Non Significant), S (Significant), HS (Highly Significant).

In the immediate postoperative recovery period, there was no change in the heart rate in both the groups but there was highly significant increase in the mean blood pressure in the patients of group I (Table 3).

Anxiety and apprehension was found in two patients in the diclofenac group. Neither groups complained of nausea and vomiting. Sedation was found in eighteen patients who received Rasna as premedication (Table 4).

The requirement dose of inducing agent (ether) was significantly more in the diclofenac group ($p<0.02$) (Table 5).

Table 3. Heart rate (HR beat min^{-1}) Mean blood pressure (MBP) (mmHg), temperature (°F), Mean (SD), P values for analysis of variance.

Parameters	Group I	Group II	P
HR baseline	88.6 (6.62)	90.0 (5.46)	NS
HR postoperative	94.0 (6.58)	94.3 (7.90)	NS
MBP baseline	90.70 (6.56)	90.35 (6.26)	NS
MBP postoperative	95.35 (5.62)	91.16 (4.61)	HS
t° baseline	98.86 (0.17)	98.83 (0.16)	NS
t° postoperative	99.05 (0.34)	98.97 (0.27)	NS

NS (Non Significant), HS (Highly Significant).

Table 4. Frequency of desirable and undersirable effects (%) after premedication.

	Group I	Group II
Sedation	0	90
Anxiety and apprehension	10	0
Nausea and vomiting	0	0

Table 5. Dose of Inducing agent (Ether) (ml); Mean (SD), p values for analysis of variance.

	Group I	Group II	P
Induction dose	56.00 (4.16)	52.50 (4.44)	S

S (Significant),

Induction was smooth in eighty five percent of patients who received Rasna whereas it was seventy five percent of patients in the diclofenac group (Table 6).

Table 6. Type of Induction (% Frequency).

	Group I	Group II
Smooth	75	85
Struggleful	25	15

DISCUSSION

The role of premedication in anaesthesia has always been of prime importance. The term 'Premedication' was first used in 1920 in an article by American anaesthetist Frank Moeffer Mc Mechan and in an annotation in the Lancet. Its purpose is the administration of drugs to facilitate the induction and maintenance of and recovery from anaesthesia.

An attempt was made to evaluate the indigenous drug RASNA as a premedication drug. It was compared with diclofenac sodium by the following clinical parameters :

1. Evaluation of psychophysiological effects on the patients after premedication.
2. Observation during the immediate postoperative recovery period.
3. Type of induction.
4. Dose of inducing agent.

Patients who received Rasna showed less rise in the heart rate after the administration of anticholinergic glycoyrrolate as compared to the patients who received diclofenac. The minimal acceleration of heart rate is attributed to the vata-shamaka properties of Rasna. Similar response was observed with the mean blood pressure and temperature.

During induction and laryngoscopy there is a usual rise in the blood pressure (hypertensive response to laryngoscopy and induction with ether anaesthesia), hence the stability of blood pressure after premedication in patients who received Rasna was useful during induction and during the course of subsequent anaesthesia. The stability of blood pressure in proportion to control is also due to 'vatahara' property of Rasna. Induction of anaesthesia was smoother in the group treated with Rasna as demonstrated by the greater requirement for induction doses in the diclofenac group.

Recovery was satisfactory in both the groups, but there was significant increase in the mean blood pressure in the patients of diclofenac group. The heart rate and temperature did not show any variation from the baseline values in the recovery period in both the groups.

We also found that Rasna has sedative property which is desirable for ideal premedication.

CONCLUSION

Under the conditions of the present study, Rasna is a suitable agent for premedication and, in many aspects, particularly the absence of unwanted side effects and maintenance of haemodynamic stability, it is superior to diclofenac sodium.

ACKNOWLEDGEMENTS

The authors thank the Council of Scientific and Industrial Research (CSIR, New Delhi) for providing financial assistance in carrying out the study.

REFERENCES

1. Chaturvedi G.N. and Singh R.H. (1965). Experimental studies on the antiarthritic effect of certan indigenous drugs. Indian J Med Res 53: 71.
2. Dasgupta B (1987), Chemical investigation of Pluchea lanceo lata, Isolation of a new quaternary base, pluchine. Experimentia 23: 989.
3. Prasad D.N., Gode K.D., Sinha P.S. and Das P.K. (1965). Preliminary and pharmacological studies on Pluchea lanceolata Linn. Indian J Med Res 53: 1062.
4. Prasad D.N., Bhattacharya S.K. and Das P.K. (1967). Anti-inflammatory activity of indigenous drugs in albino rats. Indian J Med Res 54: 582.
5. Sharma G.P. and Sharma PV (1977). Experimental study of anti-inflammatory activity of some Rasna drugs. J Res Indian Med 12 (2): 18.
6. Chaurasia S.B., Pande D.N., Goel R.K. (1998). Studies of Rasna (Pluchea lanceolata C.B. Clarke) in the management of pain (Experimental Study).
7. Bach G.L. (1979). Quoted from Brogden R.N. et al (1986). Diclofenac sodium – A review of its pharmacological properties and therapeutic uses. Drug, 20: 24.
8. Menasse R, Headwall P.R. (1978). Pharmacological properties of diclofenac and its metabolities. Scand J Rheumatol, 22: 5.

Management of Labour Pain with Inj. Nobligon (Tramadol Hydrochloride)

SINGH HARI OM*, PANDEY K.K. and DWIVEDI M.#**

Labour and delivery result in severe pain for most of women. Pain may result in a physiological response and that may harm the mother and the foetus. The commencement of forceful labour is a continuous process that involves a change from uterine contractions to forceful contractions causing labour pain. Thus the labour pain can be defined as intermittent painful uterine contractions till expulsion of the foetus.

The effective management of pain during labour is a matter of great concern for obstetricians. Three essentials of obstetrical pain relief are simplicity, safety and preservation of foetus homeostasis. The selected drug administration should be associated with only minimal undesired effect on maternal and foetal well being.

The basic aim of the present clinical trial is to evaluate the efficacy of Inj. Nobligan (Trmadol Hcl) in alleviation of pain during labour. It is a pure and simple analgesic having no effect on Prostaglandins. It has dual mode of central action.

1. Direct action of Opioid receptors.
2. Direct action of descending inhibitory pathways.

Tramadol stimulates μ receptors and to a lesser extent the δ-and k opioid receptors. It also activates spinal inhibition of pain by decreasing the reuptake of nor-epinephrine and serotonin. Analgesic doses of Tramodol may produce less respiratory depression in part because of its non-opioid receptor mediated actions.

Painful conditions where inflammation is not the predominant factor, treatment with Tramadol Hcl is mostly preferred to NSAIDS as it is the "pain component" to be treated "not inflammation".

MATERIAL AND METHODS

The subjects included in the present study were selected from OPD of Prasutitantra Department of S.S. Hospital, B.H.U. and those coming directly in Prasuti labour room S.S. Hospital B.H.U. Cases were selected after excluding systemic diseases like hypertension, respiratory disorders, congenital heart diseases, jaundice and any organic pathology like cyst, neoplasm of reproductive

* Junior Resident, Section of Sangyaharan (Anaesthesiology), Department of Shalya Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.
** Lecturer, Stree Roga, (Sangyaharan), Department of Prasuti Tantra, Institute of Medical Sciences, Banaras Hindu University, Varanasi.
# Reader, Department of Prasuti Tantra, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

system, incompetence of cervix as well as past H/O Father Gill's repair and vesico-vaginal fistula. The cases were selected for specified therapy and results were assessed on nature of labour, well being of mother and neonate. An informed consent was taken for medication assigned for drug.

Sixty patients were selected for this clinical trial randomly divided in two equal groups. The age of the expectant mothers was between 23-27 years and most of the patients were primipara. Regarding socio-economic status and educational standards maximum number of patients were from lower middle class and having education of ten plus. Following parameters were taken for the assessment of the effect of the trial drug. Injection Tramadol HCl (Nobligan) 50 mg was given intramuscularly at onset of labour pain and simultaneously 1 mg/kg intravenous infusion after base line recording of the following parameters for labour pain management.

1. **Blood Pressure :** Cardiovascular depression or excitation is manifested by the change in blood pressure. Both systolic and diastolic pressure were recorded. The mean blood pressure was calculated by Jenning's formula.
2. **Pulse Rate :** Any fall or rise in pulse rate was recorded initially before administration of drug and hourly after drug administration till the expulsion of the foetus.
3. **Respiratory Rate :** Any change in respiratory rate before and after drug administration was recorded hourly through out the whole observations.
4. **Pain Percentage Response :** Response of the drug in pain relief was recorded by using Visual Anologue Scale (VAS).
5. **Neonatal Examination :** Under close supervision APGAR Score of the neonate was recorded at one minute and five minutes interval after birth. Resuscitation whenever needed was done in usual manner. Baby was kept covered to climatize to atmospheric temperature. Physical and neurological examinations were carried out to exclude any abnormality.

OBSERVATION AND RESULT

Table 1. Demographic Profile of expectant mothers.

S.No.	Variables	Controls (mean ± SD)	Trial (mean ± SD)	Significance of difference
1.	Age (Years)	24.01 ± 2.23	23.82 ± 2.86	NS (Z = 1.48)
2.	Height (cm)	155.06 ± 2.17	154.72 ± 3.28	NS (Z = 0.23)
3.	Weight (kg)	53.84 ± 2.44	54.35 ± 2.58	NS (Z = 1.68)

It is obvious from above observation that mean age, mean weight and mean height were indentical and insignificant in patients of both the groups (Table 1).

Table 2A. Mean of mean BP (mmHg) initially and hourly after medication (between the groups).

Time (hrs.)	Control group (mean BP mmHg)	Trial group (mean BP mmHg)	't'	'p'
0	113.00 ± 12.49	118.22 ± 6.24	1.88	NS
1	114.70 ± 11.09	117.45 ± 6.92	1.02	NS
2	114.02 ± 11.81	114.82 ± 6.35	0.06	NS
3	115.40 ± 11.39	113.28 ± 6.21	1.70	NS
4	116.76 ± 10.66	108.08 ± 4.95	2.98	< 0.01
5	116.58 ± 09.41	105.26 ± 4.86	4.02	< 0.01
6	116.58 ± 09.41	104.52 ± 4.67	6.53	< 0.01

Table 2B. Statistical Comparison of Mean Blood Pressure within the hour distribution in both groups.

Time (hrs.)	Control group		Trial group	
	't'	'p'	't'	'p'
0 Vs 1	0.58	NS	0.18	NS
0 Vs 2	0.61	NS	1.58	NS
0 Vs 3	0.55	NS	0.86	NS
0 Vs 4	0.86	NS	2.15	< 0.05
0 Vs 5	0.88	NS	2.16	< 0.05
0 Vs 6	0.88	NS	2.19	< 0.05
1 Vs 2	0.47	NS	1.56	NS
1 Vs 3	0.55	NS	4.22	< 0.05
1 Vs 4	1.40	NS	5.65	< 0.001
1 Vs 5	1.41	NS	6.08	< 0.001
1 Vs 6	1.41	NS	6.19	< 0.001
2 Vs 3	1.06	NS	1.88	NS
2 Vs 4	1.88	NS	4.16	< 0.001
2 Vs 5	1.74	NS	6.28	< 0.001
2 Vs 6	1.74	NS	6.56	< 0.001
3 Vs 4	1.96	NS	2.32	< 0.05
3 Vs 5	0.98	NS	4.36	< 0.001
3 Vs 6	0.98	NS	4.66	< 0.001
4 Vs 5	0.32	NS	2.36	< 0.05
4 Vs 6	0.32	NS	2.66	< 0.05
5 Vs 6	-	-	1.43	NS

Table 3A. Mean pulse rate per minute initially and hourly after medication between the groups.

Time (hrs.)	Control group (mean BP mmHg)	Trial group (mean BP mmHg)	't'	'p'
0	90.32 ± 13.08	90.65 ± 12.16	0.66	NS
1	92.92 ± 13.31	88.84 ± 10.21	1.98	< 0.05
2	94.86 ± 10.06	86.80 ± 11.10	2.66	< 0.01
3	94.28 ± 11.01	84.22 ± 9.15	3.67	< 0.01
4	96.76 ± 10.78	83.30 ± 8.62	3.82	< 0.01
5	98.22 ± 12.26	84.62 ± 6.64	4.21	< 0.01
6	98.26 ± 12.36	84.88 ± 6.66	4.22	< 0.01

Table 3B. Statistical Comparison of Mean pulse rate per minute within hour distribution (both groups).

Time (hrs.)	Control group		Trial group	
	't'	'p'	't'	'p'
0 Vs 1	1.22	NS	0.99	NS
0 Vs 2	2.21	< 0.05	4.36	< 0.001
0 Vs 3	2.24	< 0.05	5.64	< 0.001
0 Vs 4	3.67	< 0.01	6.12	< 0.001
0 Vs 5	4.28	< 0.01	6.08	< 0.001
0 Vs 6	4.26	< 0.01	6.12	< 0.001
1 Vs 2	1.24	NS	0.82	NS
1 Vs 3	1.26	NS	1.60	NS
1 Vs 4	3.88	< 0.01	1.92	< 0.05
1 Vs 5	4.36	< 0.01	2.24	< 0.05
1 Vs 6	4.38	< 0.01	2.32	< 0.05
2 Vs 3	0.82	NS	1.68	NS
2 Vs 4	1.24	NS	2.06	< 0.05
2 Vs 5	3.58	< 0.01	1.66	NS
2 Vs 6	3.56	< 0.01	1.65	NS
3 Vs 4	1.56	NS	1.66	NS
3 Vs 5	3.66	< 0.01	1.86	NS
3 Vs 6	3.64	< 0.01	1.85	NS
4 Vs 5	1.97	NS	1.23	NS
4 Vs 6	1.94	NS	1.20	NS
5 Vs 6	0.37	NS	1.22	NS

Table 4A. Mean respiratory rate per minute initially and hourly after medication (between the groups).

Time (hrs.)	Control group (mean BP mmHg)	Trial group (mean BP mmHg)	't'	'p'
0	22.46 ± 1.22	24.34 ± 1.67	0.89	NS
1	22.80 ± 1.88	22.82 ± 1.92	1.19	NS
2	22.96 ± 4.62	20.64 ± 1.76	2.18	< 0.05
3	23.02 ± 1.32	20.22 ± 1.60	3.32	< 0.01
4	23.18 ± 1.36	20.12 ± 1.18	3.44	< 0.01
5	23.46 ± 1.14	20.16 ± 1.22	3.76	< 0.01
6	24.39 ± 1.18	20.08 ± 1.08	4.14	< 0.01

Table 4B. Statistical Comparison of Mean respiratory rate per minute within hour distribution (within the groups).

Time (hrs.)	Control group		Trial group	
	't'	'p'	't'	'p'
0 Vs 1	1.16	NS	1.18	NS
0 Vs 2	1.22	NS	4.64	< 0.001
0 Vs 3	1.36	NS	4.62	< 0.001
0 Vs 4	1.51	NS	4.28	< 0.001
0 Vs 5	2.01	< 0.05	4.22	< 0.001
0 Vs 6	3.18	< 0.01	4.08	< 0.001
1 Vs 2	1.21	NS	1.32	NS
1 Vs 3	1.26	NS	1.28	NS
1 Vs 4	1.30	NS	1.16	NS
1 Vs 5	1.38	NS	1.22	NS
1 Vs 6	2.16	< 0.05	1.20	NS
2 Vs 3	1.19	NS	1.18	NS
2 Vs 4	1.23	NS	1.16	NS
2 Vs 5	1.28	NS	1.18	NS
2 Vs 6	2.32	< 0.05	1.16	NS
3 Vs 4	1.17	NS	1.14	NS
3 Vs 5	1.21	NS	1.16	NS
3 Vs 6	1.23	NS	1.18	NS
4 Vs 5	1.09	NS	1.12	NS
4 Vs 6	1.11	NS	1.14	NS
5 Vs 6	1.17	NS	1.10	NS

The mean BP variations were observed and recorded initially and after medication hourly in both the groups. The differences in mean of mean BP between groups are statistically insignificant from initial to 3rd hour, whereas a significant difference was observed from 3rd hour till 6th hour between the groups comparison.

It is obvious from the table that the significant decrease in mean of mean blood pressure was observed after 2nd hours till 6th hours in trial group. However, the mean BP was statistically insignificant during 0 to 2nd hours observation. This shows that with increase in time duration the BP was not raised significantly as it happens with the increasing labour pain (Table 2).

It is obvious from that mean pulse rate per minute was identical initially in both the groups showing no significant difference however a marked significant difference was observed in mean pulse rate per minute between groups when compared from 1st hour to 6th hour observation. This observation suggest that mean pulse rate per minute was compromised with the increase in the duration of labour pain in patients of trial group (Table 3).

It is obvious from the table that mean pulse rate per minute was identical and insignificant till first hour in both the groups. However, on observation the degree of significance was increased with increase in time duration when compared between the groups. The finding also suggest that trial group patients showed a compromised decrease in the mean in respiration rate per minute with increased indensity of labour pain (Table 4).

Table 5. APGAR Score evaluation (between both groups).

Time	Control group	Trial group
Ist min.	7.1 ± 0.82	7.2 ± 0.42
5th min.	9.1 ± 0.01	9.0 ± 0.00

Table 6. Evaluation of mean pain score (between both groups).

Time (hrs.)	Control group Pain %	Trial group Pain %	't'	'p'
0	72.01 ± 10.86	70.8 ± 11.9	1.17	NS
1	80.17 ± 11.52	68.3 ± 11.69	2.33	< 0.05
2	86.31 ± 12.89	57.8 ± 12.63	3.19	< 0.01
3	89.22 ± 16.31	48.5 ± 16.47	4.01	< 0.01
4	92.01 ± 16.39	47.2 ± 16.53	4.24	< 0.01
5	89.42 ± 16.40	47.1 ± 16.48	4.36	< 0.01
6	70.08 ± 16.26	46.9 ± 16.33	4.57	< 0.01

It is obvious from the table that APGAR score finding after 1st minute and 5th minute were observed identical and insignificant in both the groups which suggest that drug has no any significant neonatal depressant action (Table 5).

The observations from the above table suggest that intensity of labour pain was decreased after administration of trial drug Inj. Tramadol hydrochloride. Though none of the patients showed hundred percent pain relief but the intensity of pain was relieved 40 to 65% of initial pain score in the trial group patients (Table 6).

SUMMARY AND CONCLUSION

In the present clinical trial on sixty patients in active labour phase with a narrow age and weight distribution and basically primipara were selected as subject and divided randomly in to two equal groups. The observations were made according to parameters selected. Inj. Tramadol Hydrochloride was given 50 mg intramuscularly followed by slow intravenous infusion in the dose of 1 mg/kg body weight. The above observations suggest that the drug was found capable in minimizing the symptoms related to pain during course of labour. The drug has no significant cardiovascular and respiratory depressant action on mother and foetus in the dosage of 50 mg intramuscularly and 1 mg/kg slow intravenous infusion. The intensity of labour pain was reduced 40 to 65%, which suggest the drug Tramodol hydrochloride can be used safely to minimize the labour pain. However, more detailed study on a large number of patients is required in this regard.

Kriyakalpa's – The Ancient Ocular Therapeutic's

SINGH A.K.*, ANJU** and SAHU M.#

Shakaya tantra is one of the eight branches of Ayurveda.[1] It deals with the diseases of eye, ear, nose, throat and organs situated above the clavicle bone. When we refer to our Ayurvedic classics for the therapeutic measures adopted in eye diseases, we find the treatment includes many of the topical treatments along with systemic ones. Many drugs on systemic administration may not cross the blood aqueous, blood vitreous, and blood retinal barriers.

Kriyakalpa refers to the processes as Tarpana, Putapaka etc. Kriya means therapeutic procedure and Kalpa means specific formulation adapted for the therapeutic procedure.

According to Sushruta there are five types of Kriya kalpa.[2] They are as follows :

(1) Tarpana (2) Putapaka (3) Seka or Pariseka (4) Aschyotana (5) Anjana

Acharya Sharangdhara added two more Kriya-kapla, Pindi & Vidalaka.

TARPANA

The word "Tarpana" is derived from root 'Trip' which means to become satisfied. Thus word Tarpana means anything which satisfies or regenerates or rejuvenates. Tarpana means also Santarpan by means of which the eye shed their weakness and attain better sight.

Method of Application[3]

After Sanshodhana of the body as Emesis, Purgation, Asthapana and blood letting and having cleaned the head by Shirovirechana, a patient whose previous doshas have already been eliminated should be subjected for Tarpana in a room which is not exposed to Sun, blast of wind, dust, in the morning or in the afternoon.

The patient should lie on his back. Around the eye a firm, circular wall of paste of Urad pulse powder should be made which should not be harmful to the eye. It is applied around each eye. Then the Ghritmanda which has already been slightly heated in warm water and transformed in to liquid should filled up in ocular cavity up to the tip of the eye lashes.

* Senior Resident (Shalakya), Department of Shalya Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.
** Dr. Anju M.D. (Scho.) Rishikul Ayurvedic College, Haridwar, U.P.
# Reader & Head, Department of Shalya Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

Duration[4]

The duration of keeping Ghritamanda in the eye is –

In healthy person	–	100 Matra
Vataja disease	–	1000 Matra
Pittaja disease	–	800 Matra
Kaphaja disease	–	600 Matra

After the prescribed duration the Sneha should be drained by the outer canthus and the eye should be cleaned by Luke water.

Period[5]

One day	–	Vata-dosha
Three days	–	Pitta-dosha
Five days	–	Kapha-dosha

Indications[6,7]

- Darkness before the eyes
- Dryness of eyes
- Roughness of eyes
- Excessive hardness of eyes
- Falling of eye lashes
- Dirtiness of eyes
- Squint
- In extreme aggravation of the disease

Ashtanga Sangraha describes the indication of Tarapana viz.- Arjuna, Adhimantha, Abhishyanda, Shukra, Excessive lacrimation, difficulty in blinking and aggrevated Vata and Pitta.

Contraindication[8]

Cloudy days, excessive hot and cold season, worries and anxieties, exhaustion, dizziness and acute pain.

PUTAPAKA

In Putapaka pulverized meat and drugs are made into a lump and heated after covering it with leaves and clay etc. When it is fairly hot, it is taken out by casting off the burnt clay and the drug is properly squeezed. This is used for Putapaka (method of application similar to Tarapana).

Types[9]

Snehana Putapaka

Lekhana Putapaka
Ropana (Prasadhan Putapaka – Astanga Hridaya)[10] Putapaka

Indication[11]

Those diseases in which Tarapana is indicated but Nasya is contraindicated, deserve to be treated with Putapaka.

Snehana Putapaka	–	in very Rough (Rooksha) eyes
Lekhana Putapaka	–	in Snigdha eyes
Ropana Putapaka	–	eyes effected with Pitta, Rakta and Vrana.

Preparation and Duration

1. ***Snehan Putapaka***[12] Composed of Sneha Mansa, Vasa & Meda and Madhur group of drugs. The duration of application is 200 Vaka Matra.
2. ***Lekhana Putapaka***[13] composed of liver pieces, flesh of Jangal animals, Marich, Pippali, Lauha bhasma, Tamra bhasma, Shankh bhasma, Praval etc. It is applied on the eye for one hundred Vaka Matra.
3. ***Ropana Putapaka***[14] It is composed of human milk, Jangal mansa, honey and butter. It is applied for three hundred Vaka Mantra.

After application of proper Putapaka, the eye's get their back natural colour, become clear and able to bear the sun and the air. Eye's becomes light, patient gets piecefull sleep.[15]

SEKA AND ASHCHYOTANA

Seka means irrigation.[16] The method or procedure by which the medicated liquid is poured on the closed eyes in the form of a five stream from a distance of 4 fingers, is called Seka.

Ashchyotana means instillation of liquid drug in the form of drops on open eye's from a distance of two finger's.[17]

Classification of Sekha & Ashchyotana[18]

Sekha and Ashchyotana are classified like Putapaka

Seka

(1) Snehana Seka, (2) Lekhana Seka, (3) Ropana Seka

Ashchyotana

(1) Snehana, (2) Lekhana, (3) Ropana

Indications of Seka & Ashchyotana

Seka and Aschyotana are used in eye diseases where Putapaka is used.

Duration of Seka[19]

It is either double of Putapaka or till the eye becomes free from disease, pain and swelling and it gets natural colour and its function as blinking etc.

Lekhana Seka	-	200 Matra
Snehana Seka	-	400 Matra
Ropana Seka	-	600 Matra

Dose and Duration of Ashchyotana[20]

Lekhana Aschyotana	-	8 Drops
Snehana Aschyotana	-	10 Drops
Ropana Aschyotana	-	12 Drops

For all types of Aschyotana the duration is 100 Vaka Matra.

ANJANA (COLLYRIUM)

The derivative meaning of the word "Anjana" is that by which an ointment. The term means an application to the eye by which the latter is painted. When the disease manifested, the body has been cleaned by *Vamana* and *Virechana* and the Dosha have been localized to the eye only, appropriate Anajana should be applied.

Classification[21]

(1) Lekhana Anjana, (2) Prasadana Anjana, (3) Ropana Anjana

Ashtanga Sangraha[22]

(1) Madhur, (2) Amla, (3) Lavana, (4) Katu, (5) Tikta, (6) Kasaya

Time for Application[23]

At noon	-	Hemant and Shishir
Morning & Evening	-	Summer and Autumn
At any time	-	Basant and Versha

Wartikanjana[24]

Lakhana Anjana	-	Harenu
Snehana Anjana	-	1½ Pea
Ropana Anjana	-	2 Harenu

Rasanjana

Dose is similar to that of Lekhana, Ropana and Snehana varieties.

Churnanjana

Lakhana Anjana	-	Two Shalaka
Snehana Anjana	-	Three Shalaka
Ropana Anjana	-	Four Shalaka

Contraindications[25]

After excessive physical exercise, after weeping, exhaustion, anger, fear, after taking alcohol, in fever, after natural urges like stool, urine, sneezing etc. Sharangdhar has described two more Kriyakalpa i.e. Pindi & Vidalaka.

PINDI[26]

The remedy with crushed drugs over the closed eye in the form of Pottali is called Pindi. It is very useful in all types of Abhisyanda and also applied over Varana of the eye. The drugs of Pindi are selected according to Dosha of disease.

PINDIKA[27]

It is mentioned, in Chakradutta for inflammation, itching and acute pain in the eye is very useful.

VIDALAKA[28]

The process in which remedies consisting of crushed drugs are applied over the closed eye lids in the form of paste. Leaving the eye lashes is called 'Vidalaka'. The term Vidalaka have been used by Chakradutta and Sharangdhara. But Sushruta appears to have used the method in the term of Lepa or Alepa in different diseases of eye.

DISCUSSION

In the diseases of eye the topical drugs are usually contraindicated during night because in night the pupils are dilated which results in to closure of angles of anterior chamber creating obstruction in the drainage of aqueous humour, which in turn minimizes the therapeutic concentration of the drug. In Ashchyotana the contact period of the drug is very short but absorption rate of the drug is more. During inflammatory conditions the intercellular pores becomes wide, corneal - permeability increased, and absorption of drug is increased. Probably due to this reason the Ashchyotana is indicated in inflammatory conditions.

Duration of drug administration is more in Seka thereby the rate of absorption is more, it is indicated in severe eye infections. In case of Anjana's the duration of therapeutic procedure the tissue contact period will be more hence the bioavailability becomes more. In case of Tarpana the drugs used are in the suspension form containing Ghee & oils which are lipid soluble crossing corneal

epithelium irrespective of molecular size. Putapaka is indicated in diminished visual acuity. Pindi and Vidalaka are used to relieve inflammation, congestion and irritation etc.

CONCLUSION

- For Kriyakalpa day time is preferred to obtain highest therapeutic concentration of the drug in the aqueous humour.
- Anjana's are used topically because the arsenic and antimony compounds can not cross the blood aqueous barrier that is why advised topically.
- Only a fraction of drug can reach in to eye due to blood aqueous barrier which can not achieve therapeutic concentration of the drug due and hence local therapeutic procedures are more effective in treating the ocular disorders.

REFERENCES

1. Sushruta Sutrasthan – 1/6
2. Sushruta Samhita Uttartantra – 18/4
3. Sushruta Samhita Uttartantra – 18/5,7
4. Sushruta Samhita Uttartantra – 18/8
5. Sushruta Samhita Uttartantra – 18/12
6. Sushruta Samhita Uttartantra – 18/17
7. Astanga Sangraha Sutrasthan – 33/3
8. Sushruta Samhita Uttartantra – 18/18
9. Sushruta Samhita Uttartantra – 18/21
10. Astanga Hridaya Sutrasthan – 24/16
11. Sushruta Samhita Uttartantra – 18/19-20
12. Sushruta Samhita Uttartantra – 18/22
13. Sushruta Samhita Uttartantra – 18/24,25
14. Sushruta Samhita Uttartantra – 18/26
15. Sushruta Samhita Uttartantra – 18/32
16. Sharangdhara Samhita Uttarkhand – 13/12
17. Sharangdhara Samhita Uttarkhand – 13/14
18. Sushruta Samhita Uttartantra – 18/45
19. Sushruta Samhita Uttartantra – 18/47
20. Sushruta Samhita Uttartantra – 18/46
21. Sushruta Samhita Uttartantra – 18/32
22. Astanga Sangraha Sutrasthan – 32/8
23. Sharangdhara Samhita Uttarkhand – 13/62,63
24. Sushruta Samhita Uttartantra – 18/59,60
25. Sushruta Samhita Uttartantra – 18/68
26. Sharangdhara Samhita Uttarkhand – 13/22
27. Chakradutta Netra Chikitsa – 3
28. Sharangdhara Samhita Uttarkhand – 13/22

THE NEWS

6th Feb. 2001 — **Varanasi**

- 'Sangyaharan Day' - Workshop on C.C.P.R. from 6-21 Feb. 2001 and 23 Feb. - 9 March, 2000
- ***Contact:*** Section of Sangyaharan, Faculty of Ayurveda, I.M.S., B.H.U., Varanasi.

6th Feb., 2001 — **Pune**

- Sangyaharan Day - Tilak Ayurveda College, Pune.

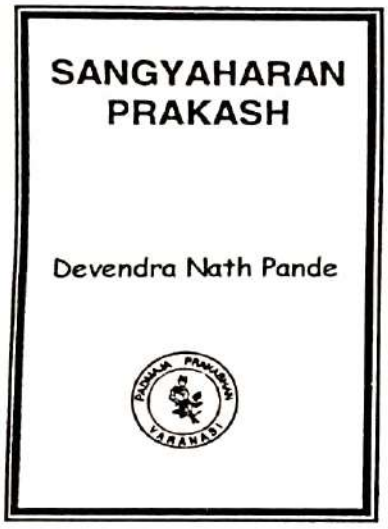
10th April, 2001 — **Sweden**

- ESA 8th Annual Congress (European Society of Anaesthesiologists), Gothenburg, Sweden
- ***Contact:*** Options Eurocongress, Ms. Dionne Bosma, rue Washington 129, B-1050 Brussels, Belgium, Tel.: +322-3465301; Fax: + 322-3463637; Email: dionne@options.com.cy

Jan., 2002 — **Sawantwadi, (M.S.)**

- Vth National Conference of Association of Anaesthetists of Indian Medicine, Ayurveda College, Sawantwadi, (M.R.)
- ***Contact:*** Dr. R.K. Gupta, H.O.D. Shalya Shalakya, R.J.V.S. Ayurvedic Hospital, Sawantwadi - 416510; Tel.: 02363-72302.

BOOK REVIEW



Sangyaharan Prakash

By

Dr. Devendra Nath Pande

Book for undergraduate of Ayurveda and Postgraduates of Sangyaharan.

The book is available at:

Padmaja Prakashan
Ganeshpuri Colony
Susuwahi
Varanasi - 221 005.

Price: Rs. 250.00, Pages 200

It is an excellent and handy guide book on 'Anaesthesia - Sangyaharan'. Till date no book is available on this subject by any Ayurvedic Scholar. I do strongly recommend it to readers of medicine, specialists of anaesthesiology, all the undergraduate students of Ayurveda and postgraduates of surgical specialities like - Shalya Shalakya and Prasuti Tantra for useful informations and references.

Prof. D.P. Puranik
Head, Department of Sangyaharan
Tilak Ayurved College, Pune

Release of a Book **'Sangyaharan Prakash'** written by Dr. D.N. Pande by Prof. P.H. Kulkarni

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	:	Sangyaharan/Pain/Palliation	
Membership Fee	:	Life Member	Annual Member
Membership Fee	:	Rs. 1000/-	Rs. 100/-
Associated Membership	:	Rs. 500/-	Rs. 100/-

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)

Place of Publication	:	Bharatiya Sangyaharak Association (A.A.I.M.) Operation Theatre Block (Indian Medicine) S.S. Hospital, Banaras Hindu University Varanasi - 221 005.
Period of its Publication	:	Bi-annual .
Printers Name	:	Dr. Devendra Nath Pande
Whether citizen of India ?	:	Yes
Address	:	Bharatiya Sangyaharak Association (A.A.I.M.) Operation Theatre Block (Indian Medicine) S.S. Hospital, Banaras Hindu University Varanasi - 221 005.
Publisher's Name	:	Dr. Devendra Nath Pande
Whether Citizen of India ?	:	Yes
Address	:	Bharatiya Sangyaharak Association (A.A.I.M.) Operation Theatre Block (Indian Medicine) 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.
Name and Address of Owner	:	Bharatiya Sangyaharak Association (A.A.I.M.) 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

REG. NO. 72006/98

On behalf of Bharatiya Sangyaharak Association (Association of Anaesthetists of Indian Medicine), Printed and Published by Dr. Devendra Nath Pande. Printed by Knandelwal Offset, Mahmoorganj, Varanasi and Published at Bharatiya Sangyaharak Association, O.T. Block, (I.M.), S.S. Hospital, B.H.U., Varanasi - 221005. Editor : Dr. Devendra Nath Pande. Computerised typesetting by M/s SPECTRUM, Kabir Nagar, Durga Kund, Varanasi.