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SANGYAHARAN SHODH

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EDITORIAL

During the 16th National Conference at the Department of Sangyaharan, I.M.S., B.H.U., Varanasi on 17-19th January 2014 at the occasion of celebration of Foudation Day of Department of Sangyaharan the august gathering discussed about the need of Integration of Ayurved with other system of medicine. A resolution was made to send to the Government of India as well as to the state Governments to proceed for Act Amendment so that integration of different system of medicine can be implemented in every state and can be practiced by practitioners of each system of medicine. It will be only possible when a new course curriculum will be framed for every system. We appealed to all the Academician, Politician, legistrators, Parliamentarians and authorities to pave the way so that not only our country but world population can be benifitted with this most useful Integrated system of medicine incorporating all the treasures of different systems e.g.AYUSH.You will be happy to know that the Secretary-AYUSH expressed the same thing during his visit on 14 August 2014 at the Banaras Hindu University, in Late K.N.Udupa Auditorium .He not only supported the vision of Banaras Hindu University but he assured to come with a new Act and New course curriculam. He invited to the academicians of all pathies to work on this line. We are very much hopeful with the Modi Government.Integration is included in B.J.P.Election manifesto too. This is right time to persue at every lebel by every organization of AYUSH system.

It will help to provide health to all- Globally. We hope for a great revolution and great achievements for human being.

JAI HIND JAI SANGYAHARAN JAY AYURVED

Devendra Nath Pande,

Chief Editor, Professor & Head, Deptt. of Sangyaharan,

I.M.S., B.H.U., Varanasi.

Re-hysterectomy for uterine fibroid – A case report

*Dr. Sunita Suman **Prof. Neelam ***Dr. Shiv Ji Gupta ****Dr. Sarita *****Dr.Ajay

Abstract :A post-hysterectomy patient, Hospital No. 8200, named Anwari, aged 30 years, professionally housewife, married life for 14 years, came in Shalya O.P.D. with the complaint of regular bleeding per-vaginum for 3 days at interval of 28-30 days since 3 months. Before 3 months, she had surgical menopause for 8 months after abdominal hysterectomy.

Keywords: Post hysterectomy, abdominal hysterectomy, surgical menopause, regular bleeding per-vaginum

Introduction: In surgical menopause, menstruating women who have hysterectomy with uni or bilateral oophorectomy experience menopausal symptoms. In this case, the cause of re-occurrence of regular bleeding p/v for 2-3 days at the interval of 28-30 days is that ovarian functions are normal and there is a possibility of presence of internal genitalia like uterus and ovaries. After hysterectomy, the cause of regular menstrual bleeding may be due to uterus bicornis unicollis or rudimentary horn with active ovary. In uterus bicornis unicollis[1], two uterine cavities are present with one cervix. The horns may be equal or one horn may be rudimentary[2].

Case Report :A post-hysterectomy patient named Anwari, aged 30 years, professionally house wife, married life for 14 years having 2 children, came in Shalya O.P.D., Ayurvedic wing Sir Sunderlal Hospital, Banaras Hindu University, Varanasi, Uttar Pradesh, India with complaints of pain in lower abdomen and bleeding p/v for 2-3 days at interval of 28-30 days since 3 months. Patient had history of abdominal hysterectomy on 7/3/13 which was done in the hospital outside BHU (Case summary, Fig. No. 1) After 8 months of hysterectomy, she developed the above mentioned complaints and visited in Shalya O.P.D., she was sent for ultrasonography and referred to Prasuti Tantra O.P.D. for further examination and management. On per-speculum examination, cervix was not seen only a small dimple like structure was present in the vaginal vault but on per- vaginum examination, there was a non tender, regular mobile mass was felt four finger below the umbilicus. A small rent was present, which allows inserting a tip of the finger. Three repeated abdominal ultrasonography revealed that-

1. Post hysterectomy, complex adnexal mass ? Ovarian lump on 7/8/13 (Fig. 2).
2. Post hysterectomy right ovarian cyst size 50 x 40 mm2 on 14/10/13 (Fig. 3)
3. Mild bulky uterus showing presence of 40 x 32 mm size fibroid in anterior wall ?

*Assistant Professor, **Professor & Head, *** Assistant Professor, **** Senior resident , ,***** Junior resident, Department of Prasuti Tantra & Department of Shalya Tantra, Faculty of Ayurveda, Institute of Medical sicences, Banaras Hindu University, Varanasi, U.P., India, 221005. E-mail: ssom18@gmail.com, guptasjbhu@yahoo.co.in,
Correspondence author: *Dr. Sunita Suman(09415572994), **Prof. Neelam (08858505119), ***Dr. Shiv Ji Gupta (09415227419)

Intramural vs Subsecrosal), presence of 25 x 19 mm size complex cyst in right ovary with internal echoes and organized areas inside on 11/11/13. (Fig. 4)
Plan of surgery – Exploratory laparotomy was done on 1/3/14.
Intra-operative findings – Unicornuate uterus with fibroid along with left sided ovary and fallopian tube (Fig.5)

Procedure – Under SA, rudimentary uterus with fibroid and left sided ovary and fallopian tube were removed on 1/3/14 (Fig.6 & 7). Sample was sent for histopathological examinations.

Conclusion: Hysterectomy is one of the procedures in case of big uterine fibroid or any benign uterine growth. In rare cases, a small fibroid can be developed in rudimentary uterus after hysterectomy.

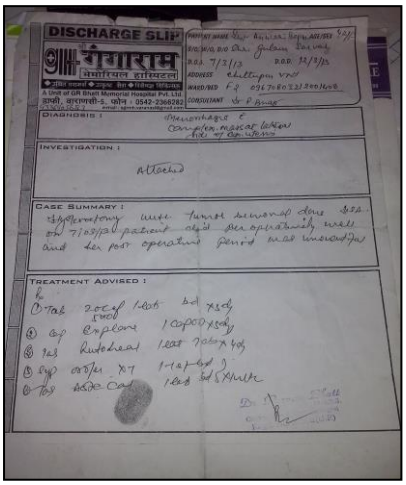
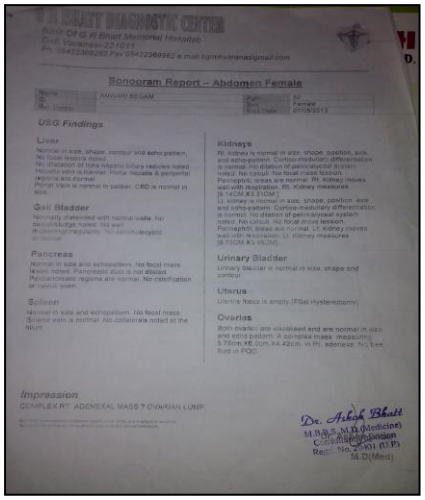


Fig: 1.



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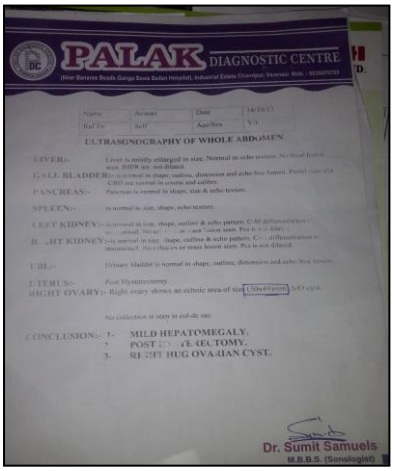

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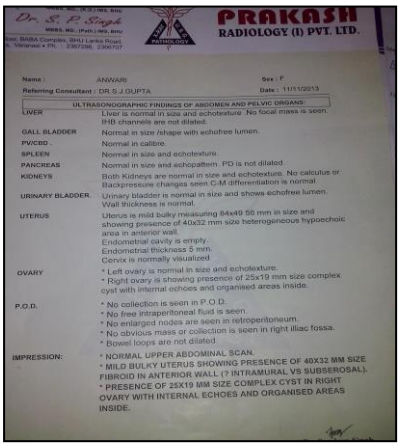
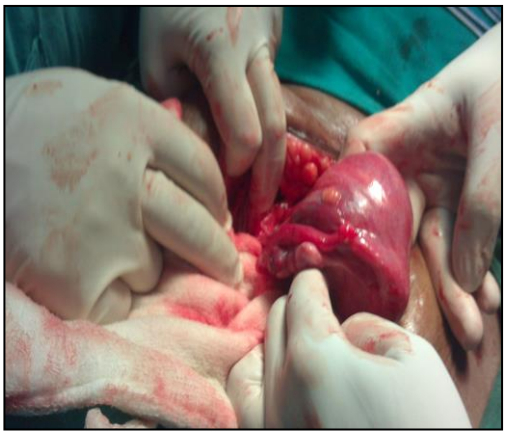
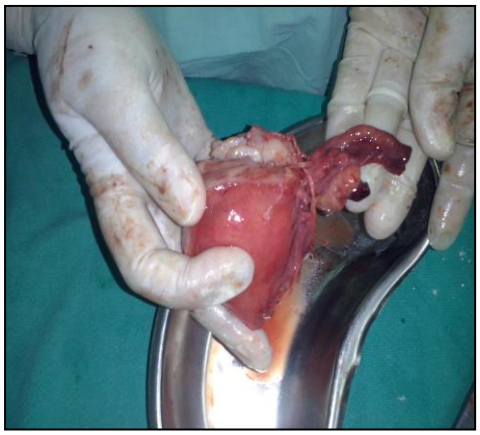


Fig: 4.

Fig: 1. Case summary of previous abdominal hysterectomy.
Fig: 2, 3 & 4 : Abdominal USG





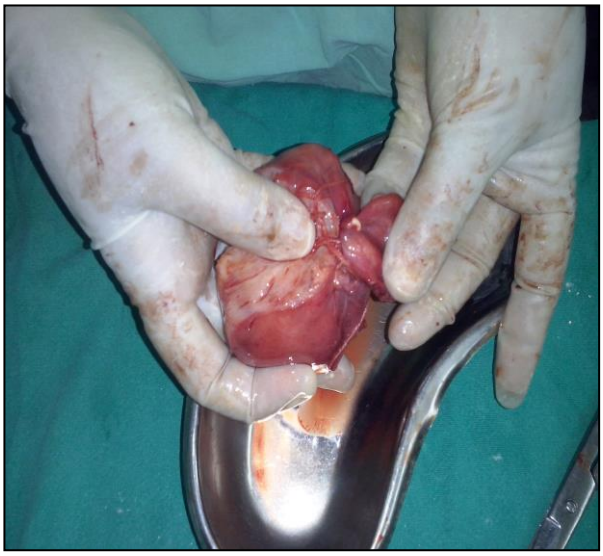


Fig: 5. Uterus with fallopian tube and ovary on exploratory laprotomy
Fig: 6. Unicornuate fibroid uterus with left side ovary and fallopian tubes.
Fig: 7. On cut section of anterior wall of uterus showed fibroid

References-

Berek & Novak's Gynaecology 14th Edition,2007, Semmens JP. Congenital anamolies of female genital tract. Obstet Gynecol 1962; 19:328-350.
Shaw's Textbook of Gynecology, 14th Edition, 2008, Paqge -86, Congenital malformation of female generative organs


PRODUCT PORTFOLIO
ACEROUZ-MR/P/SP Aceclofenac + Paracetamol + Chlorzoxazone/Serratiopeptidase
CLAVAX-625 Amoxycillin + Clavulanic Acid
CLAVAX-D Amoxycillin + Dicloxacillin
DELROZ-G Diacerein + Glucosamine + MSM
EZY Doxophylline
FEBAC-XT Ferrous Ascorbate + Folic Acid + Zinc
MIZIT-250/500 Azithromycin
NOXI-P Lornoxicam + Paracetamol
ROFIX-100/200 Cefixime Anhydrous
ROFIX-CV Cefixime + Clavulanate Potassium
ROFIX-OX Cefixime + Ofloxacin
ROFIX-AZ Cefixime + Azithromycin
RONAC-S/SP/MR Diclofenac Potassium + Serratiopeptidase /Chlorzoxazone/Paracetamol
RONAC-XL Diclofenac Sodium + Paracetamol + Trypsin : Chymotrypsin
ROULAST-M Montelukast + Levocetirizine
ROULET-DSR Rabeprazole Sodium + Domperidone
ROULET-IT Rabeprazole Sodium + Itopride Hydrochloride
ROUPAN-40/D/DSR Pantoprazole + Domperidone
ROUPOD-CV 325 Cefpodoxime + Clavulanate Potassium
SINPAR-650 Paracetamol
THIOKOL Aceclofenac + Thiocolchicoside
TRICK-10 Cetirizine
X-FLAV Flavoxate
ZECOBAL-G Gabapentin + Methylcobalamin
ZECOBAL-P Pregabalin + Methylcobalamin
ZELCAL Calcium Carbonate 1000mg + Vit. D3
ZELCORT-6 Deflazacort
ZELFIX-250/500 Cefuroxime
ALMOR Meropenem
CILAZEL Imipenem + Cilastatin
CLAVAX 1.2 Amoxycillin + Clavulanic Acid
FEBAC-S 2.5/5ml Ferric Hydroxide Complex With Sucrose
FOZAC Cefoperazone Sodium + Sulbactam
MIZIT Azithromycin
MPROZ Methyl Prednisolone Sod. Succinate
MPROZ-A Methyl Prednisolone Sod. Acetate
PIPZAR Piperacillin + Tazobactam
ROCEF 250/500/1GM Ceftriaxone
ROCEF-S 1.5/375/750 Ceftriaxone + Sulbactam
ROCEF-T Ceftriaxone + Tazobactam
ROCYP L-Ornithine-L-Aspartate
ROMIK-100/250/500 Amikacin
ROUPAN-IV Pantoprazole Sodium
ROUVIT PLUS (Dispo. Pack) M.cobalamin + P.doxine + Niacinamide
ROZID 250/1gm Ceftazidime 250,1gm
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ZELDAC-25/50 Nandrolone Decanoate (Dispo. Pack)
ZERTAN Tranexamic Acid
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LYCOGEL Lycopene + Multivitamin + Multiminerals
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A Clinical Evaluation of Shigruguggulu on cardiovascular system under spinal anaesthesia

***Dr.B.N.MAURYA **Prof.D.N.PANDE**

INTRODUCTION: Present research work was done on 150 healthy patients. The patients were divided into three groups. Each group included 50 patients with age (16-60 year), height and weight distribution. The patients were posted for primary threading, herniotomy with herniorrhaphy and hemorrhoidectomy, skin grafting, sentinel tag, tubectomy, abdominal hysterectomy. The pt's of group 1st will be premedicated with two capsules of Shigruguggulu 500 mg (2/3 part of Shigru root bark decoction & 1/3 Shigru root bark choorn with guggulu) orally at 10 pm & 90 minute before anaesthesia and inj. Glycopyrrolate 0.2 mg IM 60 minute before anaesthesia. The pt's of group 2nd will be premedicated with two capsules of Shigruguggulu 500 mg (Shigru root bark decoction with guggulu) orally at 10 pm & 90 minute before anaesthesia and inj. Glycopyrrolate 0.2 mg IM 60 minute before anaesthesia. The pt's of group 3rd will be premedicated with tab. Diclofenac sodium 50 mg orally 10 pm & 90 minute before anaesthesia & inj. Glycopyrrolate 0.2 mg IM 60 minute before anaesthesia. Shigruguggulu is a compound drug made up of Shigru bark and Guggulu.

References in Ayurvedic Literature: Shigruguggulu is not mentioned in ancient literature. Shigruguggulu is anubhoota yoga of Kashi Hindu University using as analgesic and anti-inflammatory since long time in the Shalya Ward and OPD of the Sir Sunderlal Hospital, Banaras Hindu University. In order to understand the total properties and action of Shigruguggulu, it is necessary to go in the details of individual drug.

Various experimental and clinical studies have been done previously, by using different medicinal plants and indigenous compounds. Shigru and guggulu were also evaluated by previous workers both clinically and experimentally for different purposes. In the present research work an indigenous drug Shigruguggulu was evaluated for its efficacy as an anti-inflammatory analgesic, in the post operative pain management under lumber subarachnoid block (LSAB).

Collection & Preparation of Drugs : Shigru was collected from the Ayurvedic garden of the Institute of Medical Sciences, Banaras Hindu University Varanasi and Guggulu was taken from market. After confirming its validity, coarse powder of Shigru was prepared (after the shigru bark was dried complete under shade) and guggulu shodhan was done in cow milk. There are two methods of preparation of Shigruguggulu as below-

Equal part of Shigru bark and Shuddha guggulu was taken. Then the decoction of 2/3 part of Shigru bark powder was prepared and filtered. It was evaporated on mild heat. Then shuddha guggulu was mixed. The 1/3 remaining part of fine Shigru powder was also mixed and solidified on mild heat to make tablet or vati of Shigruguggulu.

Equal amount of Shigru powder and guggulu was taken and decoction of Shigru was prepared and it was mixed (dissolved) with shuddha guggulu on mild heat. Then semi-solid material was dried and tablets or vati were formed.

This 1st method was adopted in Ayurvedic Pharmacy of Institute of Medical Sciences, Banaras Hindu University. And 2nd method is classical preparation of shigruguggulu. Thus trial drug Shigruguggulu (both preparation) was prepared by Ayurvedic Pharmacy of Institute of Medical Sciences, Banaras Hindu University, Varanasi, supplied for this study.

***M.O. Govt.Ay. College & Hospitsal, Varanasi**Prof. & Head,Departt. of Sangyaharan, I.M.S., B.H.U., Varanasi-221005.**

Groups	Method of preparation	Yield in %
Groups I	The decoction of 2/3 part of Shigru bark powder was prepared and filtered. It was evaporated on mild heat. Then shuddha guggulu was mixed. Then 1/3 remaining part of fine Shigru powder was also mixed and solidified on mild heat to make tablet or vati of Shigruguggulu.	130 to135 %
Group II	Equal amount of Shigru powder and guggulu was taken and decoction of Shigru was prepared and it was mixed (dissolved) with shuddha guggulu on mild heat. Then semi-solid material was dried and tablets or vati were formed	103 to104 %

Drug Presentation- 500 mg of fine powder of Shigruguggulu was filled in each capsule for prescribing the patients of this study. Inert ingredients in the formulation are capsule which is lactose, maize starch, and magnesium stearate and sodium lauryl sulphate.

Dose of Shigruguggulu

Shigruguggulu 1 gm (2 capsules) at 10 pm and 1 gm (2 capsules) 90 minute before the operation was the standard dose regime for the trial groups.

Selection of the Patients : In the present study 150 patient of A.S.A. (American Society of Anaesthesiologists) grade I and II undergoing, herniotomy with herniorrhaphy, skin grafting, primary threading, hemorrhoidectomy, tubectomy (tube ligation), and abdominal hystectomy were selected for this study from the Sushruta & kasayap ward of the Sir Sunder Lal Hospital, Banaras Hindu University.

The patients, selected were the standard population of age group (16year to 60 year) and similar physique. All patients were to undergo lumber subarachnoid block (LSAB). The patients with deformities of spinal card, neurological and mental disturbances, hepatic diseases, and renal disorders, cardiovascular diseases, hypersensitive to local anaesthetic and diclofenac sodium and with local infection were excluded. The study was conducted after proper written consent of individual patients explaining the methodology and aim of the study.

Grouping of Patients : The 150 selected patients were randomly divided into three equal groups of 50 patients each.

The group 1st consists of 50 patients, were given shigruguggulu 1 gm (2 capsules of 500 mg) (Equal part of Shigru bark and shuddha guggulu was taken. Then the decoction of 2/3 part of Shigru bark powder was prepared and filtered. It was evaporated on mild heat. Then shuddha guggulu was mixed. The 1/3 remaining part of fine Shigru powder was also mixed and solidified on mild heat to make tablet or vati of Shigruguggulu.) at 10 pm and 90 minute before the operation and labeled as trial group 1st.

The group 2nd consists of 50 patients, were given shigruguggulu 1 gm (2 capsules of 500 mg) (Equal amount of Shigru powder and guggulu was taken and decoction of Shigru was prepared and it was mixed (dissolved) with shuddha guggulu on mild heat. Then semi-solid material was dried and tablets or vati were formed.) At 10 pm and 90 minute before the operation and labeled as trial group 2nd.

Group 3rd consists of 50 patients were given tab. diclofenac sodium 50 mg at 10 pm and 90 minute before operation and labeled as control group /group 3rd .

Disintegration Time

The disintegration time of the prepared capsule at 37°C of water was observed in the disintegration time machine. The time required for complete disintegration of capsule was found 21 minute for group 1st shigruguggulu & group 2nd shigruguggulu was 30 minute. The capsules of Shigruguggulu were expected to dissolve in the stomach within their disintegration time.

Preoperative Preparation and Premedication : All the patients were assessed thoroughly and consent was taken about the proposed research work. Their age (years), weight (kg), and height (cm) and vital signs viz. pulse rate, blood pressure, respiratory rate, and oral temperature, peripheral saturation of oxygen and end tidal carbon dioxide were recorded. General condition, physiological and psychological conditions were also recorded. The relevant routine investigations which are essential prerequisite for the conduct of anesthesia were evaluated and after complete satisfaction the grouping was done as discussed earlier.

Early morning soap water enema was given for bowel preparation to the patients of each group accordingly.

The number of patients and nature of premedication in the selected three groups.

Groups	**No. of Pt's**	**Nature of premedication**
Groups I	50	1. Two capsules of Shigruguggulu (each 500mg) at 10 pm (previous night) and 90 minutes before anaesthesia. Prepared by commercial method i.e. 2/3 part of shigru root bark decoction &1/3 part of shigru root bark powder with guggulu. 2. Inj. Glycopyrrolate 0.2mg I.M. 1hr before the anaesthesia.
Group II	50	1. Two capsules of Shigruguggulu (each 500mg) at 10 pm (previous night) and 90 minutes before operation. Prepared by standard classical method i.e. shigru root bark decoction with guggulu. 2. Inj. Glycopyrrolate 0.2mg I.M. 1hr before the anaesthesia.
Group III (Control)	50	1. Tab. of Diclofenac 50mg at 10.00 pm (previous night) and 90 minutes before operation. 2 Inj. Glycopyrrolate 0.2mg I.M. 1hr before the anaesthesia.

One hour after premedication with inj. Glycopyrrolate, the patients were re-evaluated thoroughly regarding their vital signs, physiological and psychological conditions etc. and recorded on the standard proforma for the study.

Now a patent intravenous line with ringer lactate solution was maintained by identical size intravenous cannula (Venflan – 18G). After adequate preloading, the patients were transferred to operation table.

The induction of anaesthesia was done by lumber subarachnoid block (LSAB) in right / left lateral position keeping their head on the pillow.

Now proper antiseptic dressing and draping of the lumber area was done. Lumber puncture was done in all the cases by using thin size (25 G) spinal needle by midline approach. After ensuring free flow CSF at the rate of 1 drop/sec inj. Bupivacaine 0.5% (heavy) 2.4 ml was administered.

Needle was withdrawn and the area of skin prick was covered with sterile gauze piece. The patients were asked to change their posture to supine position with the help of assistant and adequate regional block was diagnosed by absence of pin prick and touch sensation in operative area.

Changes of Vital Signs [**Blood Pressure (BP in mmHg)] :**The cardiovascular depression or excitement is manifested by the change in blood pressure. Both systolic and diastolic pressure was recorded. The mean blood pressure was calculated by the method of Jennings (1969).

Mean B.P. = Diastolic pressure + 1/3 of pulse pressure

[Pulse Pressure = Systolic B.P. – Diastolic B.P.]

Any change in the M.B.P. at different stages of study was recorded. B.P. was recorded before premedication and supposed as base line. Change in blood pressure was again recorded after premedication, during subsequent anaesthesia and after recovery from anaesthesia. It was compared in same groups (within the groups) at different time using paired t-test and between the groups at corresponding identical time by using one way anova test & Post Hoc test.

Pulse Rate (PR/minute) : At every step of study, any fall or rise in pulse rate was recorded. Pulse rate was recorded before premedication and supposed as base line. Change in pulse rate was again recorded after premedication, during subsequent anaesthesia and after recovery from anaesthesia, it was compared in the same groups (within groups) at different time by using paired t-test and between the groups at corresponding identical time by using one way anova test & Post Hoc test.

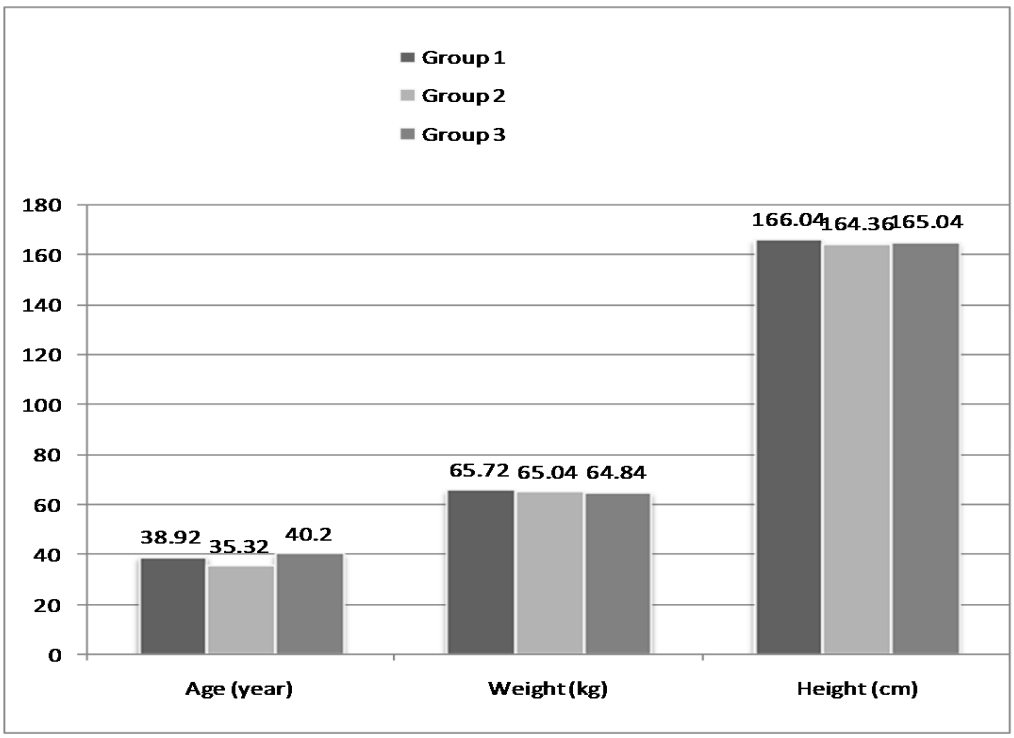
Surgical Time: Time from starting surgical procedure to the completion of surgery was recorded as surgical time. All vital signs were recorded as described earlier. The physiological and total psychological changes during subsequent anaesthesia was observed and recorded.

Total Anaesthetic time: The time from the end of induction to start of sensation of pain by gently pin prick to the perineal region and perception of touch in tower limbs was also noted

Statistical Analysis: All the data collected Viz. – Age, weight, height, blood pressure, pulse rate, respiratory rate, oral temperature, and post anaesthetic sequel etc., were recorded in a properly planned manner with the help of statistician on a master chart. The different statistical values as advocated for comparison e.g. mean, standard deviation (SD), applying paired t-test, one way anova test and post hoc test , standard error, p-value, z-value, using percentage of incidence and degree of freedom etc, were calculated under the guidance of expert statistician. The observations were noted and were also presented in graphical way.

Observation:

Fig. 1. Mean Age, Weight and Height of all pt's of Group 1st, 2nd and 3rd respectively



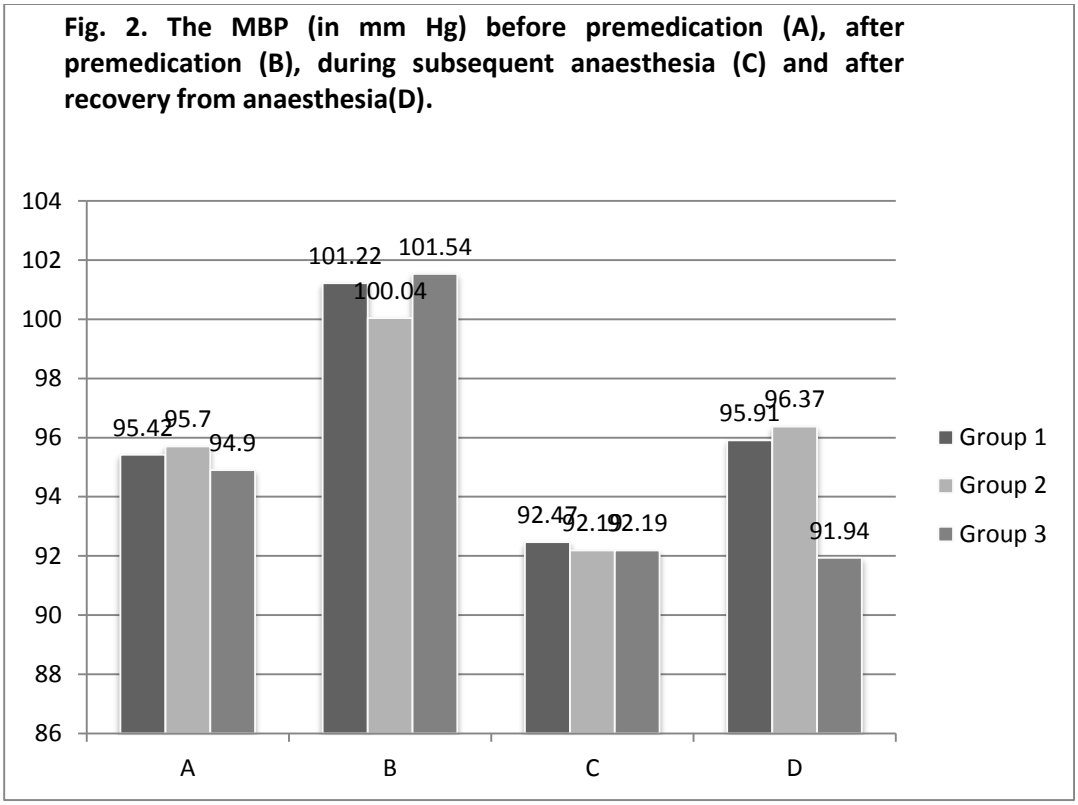


Fig. 3. The mean pulse rate/min changes before premedication (A), after premedication (B), during subsequent anaesthesia (C) and after recovery from anaesthesia (D).

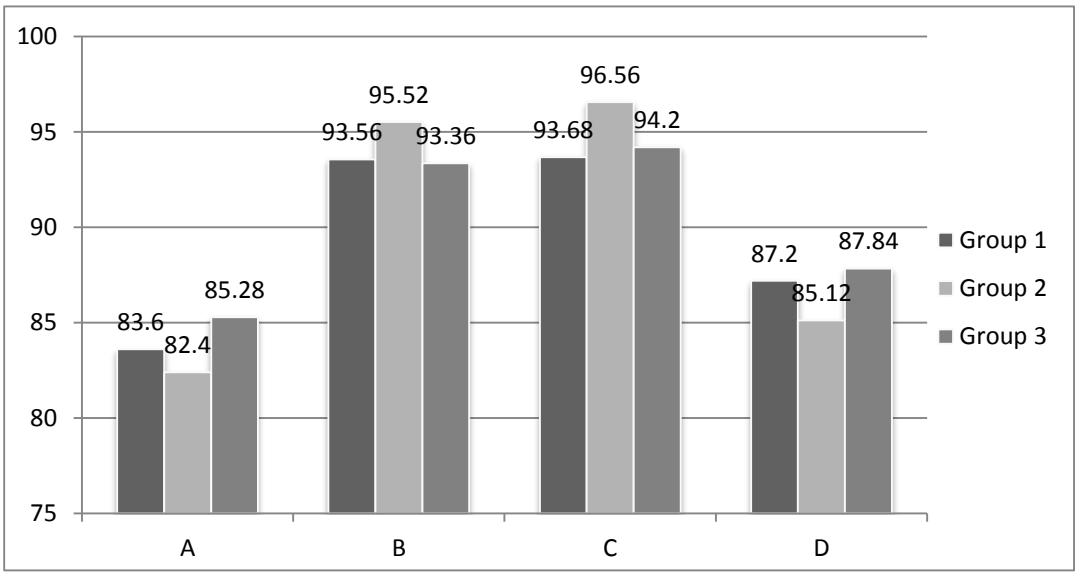


Fig.04. Mean duration of anaesthesia and mean surgical time (expressed in minutes) in group-I, group-II and group III,

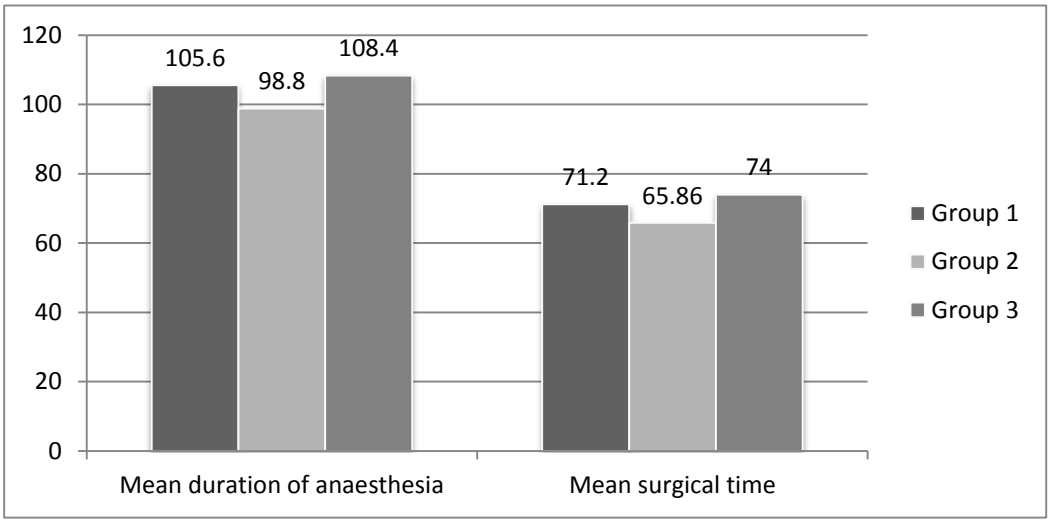
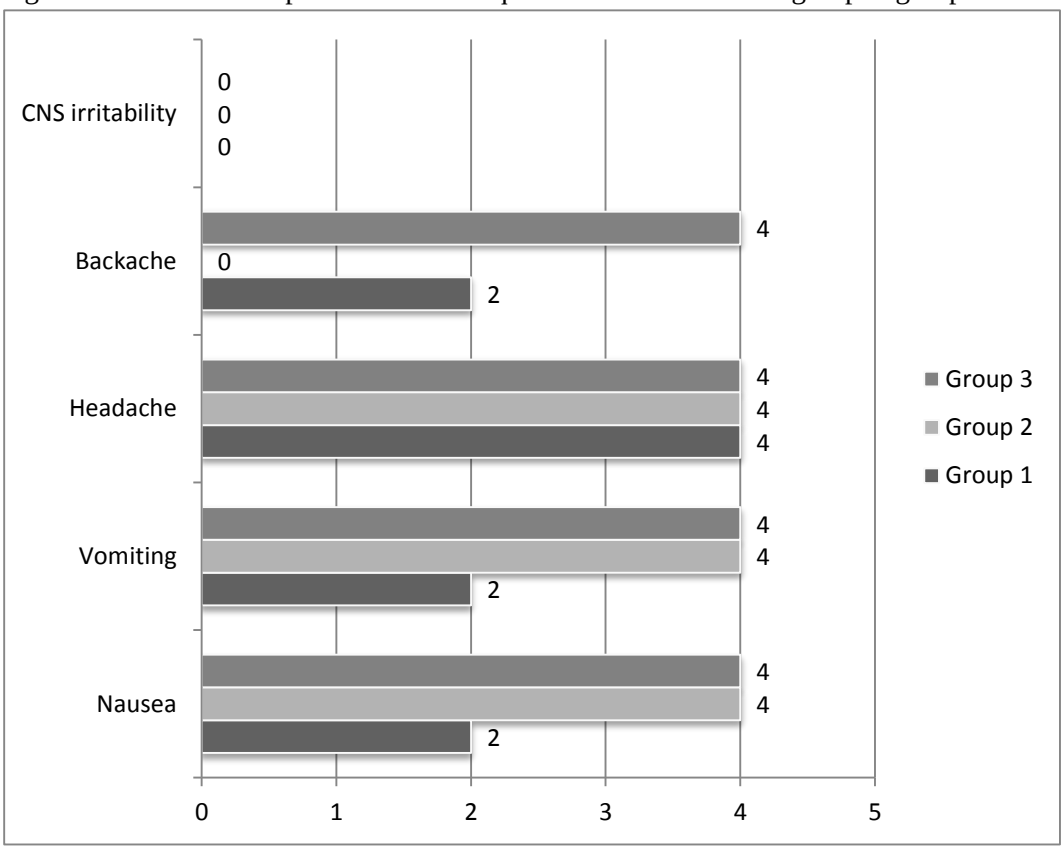


Fig.05. the incidence of post-anesthetic sequel observed between groups I group II and Group III.



Observation: The patients of all groups have similar **age, height** and **weight**.

It was observed that changes in **MBP** between the groups at different level is insignificant and within the group at different level is almost similar. So this can be explained that there is no alteration in CVS of patients of all the groups. It means that the trial and control drugs do not produce any side effect on CVS.

Pulse rate change in between the groups at different level was almost insignificant and within the group at different level was also insignificant in all the groups. So this can be explained that the identical changes in pulse rate show that there is cardiovascular stability during the whole procedure.

In present clinical trial the total **mean surgical time** was found statistically insignificant in the patient of all the three groups. As a matter of fact, duration of surgery influence many biophysical and neurohumoral changes which alters the response of drugs used at any stage of anesthesia.

On comparison of **mean anaesthetic time** (in minute) between the groups it was found insignificant statistically. The anaesthetic time was observed in the patients were able to move their lower limbs and there is perception of touch in lower limbs.

Thus the trial drug is safe anti-inflammatory analgesic drug that can be used in post operative period in those case oral intake is allowed for the management of pain. Even some patients did not require the second dose (in group 2nd n = 48, group 3rd n=46) of analgesic.

The Shothahar (anti-inflammatory), vedanahar (analgesic) property of Shigruguggulu is well established in Ayurvedic texts and it was used in all inflammatory painful conditions like Arthritis, Osteo-arthritis, etc. Pain is due to vitiation of Vata dosa. Shigru and Guggulu both are Vata shamak drabya. Due to Vata shamak property, Shigruguggulu is capable to relieve the pain produced by trauma of knife.

RESULT/CONCLUSION: The above observation shows that there is no alteration in MBP, respiratory rate, pulse rate, temperature etc. This is an extra benefit of this indigenous source. **Post anaesthetic sequel**, like nausea, vomiting, headache, backache, CNS irritability was observed insignificant in all the three groups. It means that drug has no any side effect.

REFERENCE

Berman K.C; Management of Xeropthalmia by indigenous drug (Shigru and Goghrit) 1994
Chaubey Anjana, Dixit S.K., Sharma, P.V. – Disintigration time of Commiphora mukul Thesis for M.D. Ras Shastra B.H.U.
Maurya B. N. Evaluation of Shigruguggulu in Sangyaharan as Vednahar (pain relieving) thesis of M.S. (Ay) Sangyaharan December 2004, IMS BHU
Medhi Champak, Pande D.N., Evaluation of Shigru in Sangyaharan as Preanaesthetic agent. (2003)
Mishra P.R., Guggulu in the management of post-operative pain, M.S. (Ay.) Sangyaharan Thesis 1998 I.M.S., B.H.U., Varanasi.
Mukhopadhyay B.N. Role of Shobhanjan in the management of granular conjunctivitis (Trachoma) 1987
Singh H.O. et al, Evaluation of Triphala guggulu in Post Operative Pain managements. (2000)
Vyas S.N. and Shukla C.P., A clinical study on the effect of Shuddha guggulu in rheumatoid arthritis. Rheumatism, 1987, 23:15.

APPEAL

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Chief Editor

Udumbaradi Taila In Kaphaja Yoni Roga: Traditional Uses And Properties : A Review

*Dr. Anjali Singh, ** Prof. A.K Singh *** Dr. Raman Singh

Abstract: Udumbaradi taila is indicated in Kaphaja Yoni Roga which is one of the important Ayurvedica formulation. Aim of current review is to search literature for the pharmacological properties of Udumbaradi taila. The compiled data may be helpful for the researchers to focus on the priority areas of research yet to be discovered. Complete information about the taila, its method of prepertation has been collected from various books, journals and Ayurvedic classical texts like Samhitas, Nighantus etc. Particulars of pharmacological activities were extracted from the published reports.

Key word: Yoni Roga , exudates, Seasame oil, Pancavalkala, dhava.

Intoduction: Importance of Udumbaradi Taila –Inspite of great advances of modern scientific medicine, traditional medicine is still the primary form for treating diseases of majority of people in developing countries including India; even among those to whom western medicine is available, the number of people using one form or another of contemporary or alternative medicine is rapidly increasing worldwide. Udumbaradi taila is a popular classical Ayurvedic formulation, used widely in condition called Kaphaja Yoni Roga which includes many symptoms like –Vaginal discharges, Itching, with mild pain. Udumbaradi taila contains fruits of udumbara(Ficus racemosa), bark of vata (Ficus bengalensis), ashwattha(Ficus religiosa) udumbara (Ficus racemosa), plaksha(Ficus lacor), pareesha , leaves of nimba (Azadirechta indica), patola (Ticiosanthes cucumarina), malati (Jasminum officinale), bark of palash (Butea monosperma) and dhava (Anogiessus latifolia), exudates of lac (Laccifera lacca) and shalmali(Shalmalia malabarica), Seasame oil.

All these ingredients collectively forms Udumbaradi Taila with taila paka vidhi.

Same description of Udumbaradi taila is given in Ashtanga Sangraha Uttara tantra with a difference of Tilaka . He added Tilaka (Muculinda) in place of Patola patra and according to Indu (commentator of Ashtanga Hridaya) Tilaka is Muchulinda and botanically it is Wandlandia exerta .

Method of Preparation of Udumbaradi Taila[1] –Young fruits of udumbara 10.24 kg. along with pancavalkala (vata, ashwattha, udumbara, parisha, plaksha), tender leaves of patola, nimba, and chameli is dipped in 10.24 litre water for the night. With this extract 640 gm oil is cooked with the paste of lac, bark of dhava and palasha and exudates of shalmali.

Senior Resident and Ph.D Scholar ** Professor ,Department of Dravyaguna, Faculty of Ayurveda, Institute of Medical Sciences, Banaras Hindu University M.D (Ay), PhD**

Indication – Acarya Caraka had indicated this oil to apply into vagina in form of tampon (oil soaked in piece of cloth) followed by wash with cold decoctions added with sugar. Along with above indication Caraka had also indicated this oil in case of sliminess around vagina, dilated vagina, and hard genital tract affected since long is cleaned by a week and the women gets progeny.

This oil is specially indicated in Kaphaja Yoni Roga and kaphaja yoni roga is described in Caraka as it is a disease in which Kapha, vitiated due to excessive use of abhishyandi (articles producing oozing or serous effusion) substances reaches reproductive system and causes unctuousness, coldness, itching and dull pain in vagina.

As per Sushruta in kaphaja yoni roga local symptoms present like unctuousness, itching and excessive coldness.

Vagabhatta also commented on kaphaja yoni roga and he followed Caraka and included symptoms like painlessness and yellowish discolouration of vagina also.

Madhava Nidana, Bhavaprakash and Yogaratnakar, they followed Sushruta as such.

In kaphaja yoni roga ruksha(dry) and ushna (hot) treatment should be prescribed and congenial diet in kaphaja yoniroga are oil, sidhu(a kind of wine), yavanna(barley) and pathyarishta(Abhayarishta).

In Bhava Prakash Samhita Juice of fruit of Udumbara fruit mixed with honey and consumed , the patient partaking cooked rice adding sugar and milk cures pradara(a symptom present in Kaphaja yoni roga)

Kaphaja yoni roga- With the intake of abhishyandi (which obstructs the channels) food, the aggravated kapha vitiates the reproductive system and causes itching, sliminess, mild pain and pallor of the genital organs. Her menstrual discharge will be pale and slimy. According to Sushruta the condition is characterized by sliminess, extreme coldness and itching.

In Ayurveda a detail description of Kaphaja yoni roga is discussed in Charak and Sushruta Samhita with line of treatment Snehan, Swedan, Mridu vaman and Virechana, Uttar vasti, Abhyanga, Parisheka, Pralepa and Pichu. Many therapeutic modalities and different preparation are mentioned by our ancient acharyas which can effectively treat the disease.

In kaphaja yoni roga Caraka and Vagbhatta had mentioned ruksha and ushna treatment and Udumbaradi Taila which contains twelve drugs having ruksh guna but majority of drugs are present in this formulation are shita virya but the oil was still indicated in kaphaja yoni roga this explains that in combined form drug acts differently rather single use.

Udumbura is the first drug of udumbaradi taila and basically other drugs including udumbar medicinally these are best astringent2,3, anti-inflammatory[2,3] and antimicrobial activity[2,3]

According to modern studies Udumbar contains chemical compound such as flavanoids(Krishna et al 2011), tannins, wax, saponin, gluanol acetate, ß-sitostero, leucocynadine-3-O- ß-D- glucopyrancoside, leucopelargonidine-3-O- ß-D-glucopyranoside, leucopelargonidine-3-O-α-L-rhamnopyranoside, lupeol, ceryl behenate, lupeol acetate, α-amyrin acetate, leucantho cyaniding; in trunk bark- lupeol, ß sitosterol, and stigmasterol; fruit contains- glauanol, hentriacntane, ß sitosterol, stigmasterol and it has number of properties like antibacterial, antifungal, analgesic, anti-inflammatory, anti ulcer, wound healing due to the presence of above mentioned chemical compounds.

Table I: Properties of Ingredients of Udumbaradi Taila [4]

S.No.	Name of Dravya	Rasa	Guna	Virya	Vipaka	Doshakarma
1.	Udumbara	Kashaya	Guru, ruksha	Shita	katu	K-P ↓
2.	Vata	Kashaya	Guru, ruksha	Shita	katu	K-P ↓
3.	Aswattha	Kashaya, madhur	Guru, ruksha	Shita	katu	K-P ↓
4.	Plaksha	Kashaya	Guru, ruksha	Shita	katu	K-P ↓
5.	Parisha	Kashaya	Laghu, ruksha	Shita	katu	K-P ↓
6.	Patola	Tikta	Laghu, ruksha	Ushna	katu	Tridosha hara
7.	Nimba	Tikta, Kashaya	Laghu	Shita	katu	K-P ↓
8.	Malati	Tikta, Kashaya	Laghu,snigdha, mridu	Ushna	Katu	Tridosha hara
9.	Laksha					
10.	Dhava	Kashaya	Laghu, ruksha	Shita	katu	K-P ↓
11.	Palasha	Katu, tikta, kashaya	Laghu, ruksha	Ushna	Katu	K-V ↓
12.	Shalmali Niryasa	Kashaya	Laghu, Snigdha Picchila	Shita	Katu	K-P ↓
13.	Til taila	Madhur, tikta, kashaya, Katu	Snigdha	Ushna	Madhur	K-P ↑

Tilaka- Wendlandia exerta DC. , Rubiaceae

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fryd% iwÆZd% Jheku Õqjd'N=iq"id% eqÂe.Mud¨ jsph iq.Mªfúk=¨ foÓs"kd% AA
frydRod~ d"kk;¨"Æk iqaLRoÄh nUrj¨xftr A [6]
fryd% dVqd% ikds jls p¨"Æ¨ jlk;u% dQdq"BfØehUofLreq[k nUrxnkUgjsr~ AA [7]

All twelve drugs of Udumbaradi taila except til taila were mentioned in Vrihattrai and their different properties were described at several places in vrihattrai which supports the use of each ingredient in form of formulation to use in patients of Kaphaja yoni roga (vulvovaginitis) .

First drug of Udumbaradi taila is Udumbar fruit -(Ficus glomerata roxb.) ; Family – Moraceae .. It is kashaya rasa, guru- ruksha guna, katu vipaka it pacifies Kapha – pitta and because of above mentioned properties it is indicated in Mutrasangrahaniya mahakashaya and this can prove its astringent property. Property of Udumbar leaf as mentioned by Caraka is kashaya in rasa , shita in virya and stambhana likewise, property of Udumbar fruit is also given which is kashaya, madhur and amla, vatavardhaka and guru. In Ashtanga Hridaya it is mentioned in Kashaya varga Udumbar fruit and bark has also bear healing property which is proved by its indication in Twakasanjanan yoga and Bhagna Chikitsa. Decoction of Udumbara is beneficial when there is predominance of Vata while having shita virya. Udumbaradi leha is indicated as kapha shamaka.

Next five major drugs are collectively known as Panchavalkala which includes bark of these which are Udumbara (F. Glomerulosa), Nyagrodha(F.bengalensis), Ashwattha (F. religiosa), Parisha (Ficus species), Plaksha (F. lacor) in our three major treatise these five are defined separately and together as well. In following indication bark is present of five drugs which is described earlier.

Udumbara - F. Glomerulosa ; Family – Moraceae.:bark of udumbar is indicated in Urahakshata and ksheena shukra (C.Ci 11/31). It is also indicated as a styptic in bleeding piles this indicates its stambhana property. Other indication in inflammation in form of Vatadipralepa. Nyagrodhadi gana also contain Udumbar bark and this gana is indicated for wound healing and for vaginal disorder (S.Su 38/48) . In chikitsa of Sandhigata bhagna this bark is also indicated.

Nyagrodha ; F. bengalensis ; Family – Moraceae : Properties of Vata mentioned in several nighantu also, and it is shita, guru, grahi, kapha-pitta shamaka, vrananashak and yonidoshahara which supports its use in Udumbaradi taila. This drug is also mentioned in Mutrasangrahaniya mahakashaya. Its another indication in Shweta Pradara (Leucorrhoea) in form of Pichu with lodhra kalka (C.S.Ci 30/117) which again defines its property as one of ingredient of Udumbaradi taila. Chandanadi taila is given in charaka for external use in jwara and daha which shows its shita virya property.

Ashwattha (F. religiosa), Family – Moraceae.:In local language it is known as peepal also described in Vrihattrayi at several places and like Nyagrodha and Udumbara this is also present in Mutrasangrahaniya mahakashaya(C.S.Su 4/33) , Chandanadya Taila (C.Ci 3/257) and Piccha vasti (C.Ci 14/225) , Shotha Nirvapaka vatadi pralepa contains all three (Nyagrodha, udumbar, ashwattha) . This is also present in Twakasanjanan yoga for twaka gata vrana. In dahanashaka lepa also bark of ashwattha (C.S.Ci 29/131). Ashwattha bark paste is indicated to apply over wound(A.H.U 25/59). Bark of ashwattha is indicated in fracture healing also (A.H.U 27/14)

Plaksha ; (F. lacor) ; family – Moraceae .:It is described with above three in Mutrasangrahaniya mahakashaya (C.S.Su 4/33), Chandanadi taila (C.Ci 3/258) and in Shothaanirvapaka(C.Ci 25/46), (A.H.U 25/29). Plaksha is also described in Nyagrodhadi ropana kwatha for healing purpose(C.S.Ci 25/87). It is mentioned in Nyagrodhadi Pralepa for Visarpa (C.S.Ci 21/84). Powder of Plaksha bark with honey is useful in Leucorrhoea (C.S. Ci 30/118). In burn plaksha bark paste is indicated (S.S. Su 12/23). Plaksha bark is useful in wound, discharges and female genital problem (S.S.Su 38/48). Plaksha bark paste is also good in cautery treatment(A.H.Su 30/51). Plaksha bark decoction is used in wounds of anal region(A.H.U 2/72). Effect of plaksha bark paste as anti-inflammatory.

Kapitana (F. species); Family- Moraceae.:Bark of kapitana is used as wound healer, astringent, fracture healer and also useful in diseases of female genital tract(S.S. Su 38/48-49)

In Sushruta all five are described together as a wound healer, astringent, good remedy for vaginal problem. So with these references we can assess the reason why they put together in Udumbaradi taila.

Panchavalkala with dhava twaka is mentioned by the name of Kariradi kwatha in Vipluta yoni roga(C.S.Ci.30/). In Shotha nirvapaka pralepa these five were indicated together to reduce inflammation of wound(C.S.Ci. 25/46).

After panchavalkala three leaves are present in Udumbaradi taila and these are Nimba(Azadirechta indica), Kulaka (Tricosanthes cucumarina) and Malati(Jasminum grandiflorum)

Neem - (Azadirechta indica A juss); Family : Meliaceae: It appears in the Kandughna Mahakashaya(105) (C.S. Su.-4.11) (the great decoction destroying itching) and also in the group of bitters(106) (C.S. Vi 8/143) [Tiktaskandha]. Tikta rasa(107) [C.S. Su.26/44] because of its composition with predominance of vayu and akash mahabhuta pacifies kapha having opposite qualities of prithvi and ap and also pitta due to its shita virya property. Thus it is an effective remedy for diseases caused by kapha and pitta singly or jointly. Sushruta has included nimba under the groups of Aragvadhadi (Su.Si. 38/6) specifically for vrana shodhana, Guduchyadi (Su.Si. 38/50), Lakshadi (specifically for Dushtavrana vishodhana) (Su.Su. 38/64). It acts as antiseptic and analgesic (vedanarakshoghna) (Su.Su. 5/17-18).

Basically shodhana and ropana action of nimba is by tikta rasa. Nimba leaves acts as shodhana and ropana for wounds (K.S. Kalpa 8/127). However, the blood purifying, antiseptic and healing properties of nimba were predominant for which it was recognized as one of the best drugs.

In Chakradatta Nimba leaves are described as effective wound cleanser and as such enter into a number of formulations. Juices of the leaves of nimba distroy the maggots seen in dirty wounds (44.67, 68).In sinus too nimba is useful (45.3,22).

In Bhava Prakash Samhita Nimba patra dhuma is used in dushta vrana (B.P.Ci. 49/22)

Patola – (Trichomonas cucumerina Linn.) ; Family: Cucurbetaceae :Leaf of patola is tikta in rasa(C.S.Su 8/143), shita in virya(A.H.Su 6/75) in this way it is a good drug which act as antiseptic. It is also useful in inflammatory lesion of leprosy in form of Kushthadi lepa and patola leaf is indicated in Kushtha (skin diseases)as congenial (C.S.Ci 7/83). Its healing activity is mentioned in vranaropana with Kampillakadi Taila. It can also be used as vegetable after processing in ghrita (C.S.Ci 26/241). Leaf of Patola is good for heart, light to digest, wound healer, and bitter in taste (C.S.Ci 46/262). It is also present in Karanjadi Ghrita which is indicated in any kind of wound for healing(S.S.Ci 16/17). Paste of Patola is useful in 'Arunshika'(eczema of face and scalp).Patola is described in Aragvadhadi gana for chronic wound healing (A.H Su 15/17). It is indicated in Pradara roga in form of Tiktaka ghrita (A.H.Ci 19/2). Jati, nimba and patola are collectively useful in shodhana (purification) and ropana (healing).

Malati (Jasminum officinale Linn. Forma. Grandiflorum. (Linn) Kobuski.); Family - Oleaceae ::

Malati is tikta , kashaya in rasa, laghu, snigdha, mridu in guna, ushna in virya and katu in Vipaka.

It is useful in Kushtha(skin diseases), Apachi (Cervical adenitis) and other skin ailments(C.S.Su3/4). Leaves of malati is indicated in sensation less lesion of leprosy for rubbing at affected area(C.S.Ci 7/57). In form of Kanakshiri taila it is described in skin problems to remove germs and itching (C.S.Ci 7/111). It also useful in healing oil for wounds of testicles after surgery (S.S.Ci 2/68). Another indication for shodhan (cleansing) of wound(S.S. Ci 17/24), (S.S.Ci 18/39), S.S.Ci 19/39). In dental sinuses and many other dental problems it is indicated in form of decoction(S.S.Ci 22/31,32). Malati leaves are indicated for chewing in mouth ulcers(A.H.Ci 19/24). Indicated as a wound healer(A.H.U 25/49). Its oil is indicated acute wound(A.H.U 26/26).

Laksha(Laccifera lacca ; Family – Lacciferidae):

Lac is one of the unique material . It is the only resin of animal origin being actually the secretion of

tiny insect, Laccifera lacca. In Mahabharata Kauravasa commissioned the architect to build 'Yatugriha' or laksha griha to kill pandavas.

Lac is indicated for local application in wound (A.H.U 40/48) and skin diseases(C.S.Ci 7/125).

Dhava (Anogeissus latifolia Wall.); Family – Combretaceae:Dhava is laghu, ruksha in guna, Kashaya in rasa, katu in vipaka, sheeta in virya which is mainly responsible for its stambhaka(to stop secretions) property for which it is included in this formulation. *'Kashayo madhuratwachaha'* (Shivakosha) here in shivakosha it is mentioned that bark of Dhava is kashaya and madhur in rasa. Dhava is also used as Rasayana (C.S.Ci 1-2/12). Paste of bark of Dhava along with dadhimand is used in Skin disorders (C.S.Ci 7/124) in visarpa also its bark paste is indicated(CS.Ci21/88). Decoction of Dhava bark is prescribed in Yonisrava and Vipluta for Stambhana (C.S.Ci 30/82). Its kaphashamak property is supported by its presence in Salsaradi gana which is Kaphashamak (S.S.Su 38/119), (S.S Ci 19/33) and also in Mushkakadi gana (A.H.Su 15/32). Dhava bark is indicated in wound also(S.S.Ci 1/86), (S.S.Ci 2/64).

Palasha (Butea monosperma (Linn.) Kuntze ; Family – Fabaceae(Papilionatae):Palasha bark is laghu, ruksha in guna, katu,tikta,kashaya in rasa, katu in vipaka, ushna in virya.

Palasha bark is useful as Rasayana in Amalaka rasayana (C.S.Ci 1-1/73). This is also indicated in loss of sensation in Kushtha as Triphaladi churna (C.S.Ci 7/69). Palashadi varti is described for Yonipaicchilya and Klinnata (Whitish discharge Per vaginum)(C.S.Ci 30/122). It is also used Rodhradi gana and Mushkakadi gana which is indicated for Yonidoshahara(Diseases of female reproductive system)(S.S.Su 38/14), (S.S.Su 38/21), (A.H.Su 15/26), (A.H.Su 15/32) Palasha bark is also described in worms(S.S.Ci 4/32), as a wound cleanser (S.S.Ci 19/42), as a paste in wound (S.S.Ci 20/14).

Shalmali (Salmali malabarica Schott & Endl.) :In this oil Shalmali Niryasa i.e Mocharasa is present and its main action is to suppress any kind of secretion (C.S.Su 4/5), (C.S.Su 4/31), (C.S. Su 4/46). It is also used in Priyangavadi gana for wound healing (S.S.Su 38/47), (S.S.Su 17/28).

Conclusion -

After thorough assessment of all the ingredients of Udumbaradi taila we can conclude that how it is effective in Kaphaja Yoni roga (Vulvovaginitis).

Probable mode of action- Properties of different ingredients which is mentioned in Table I directly shows that kashaya rasa reduces discharges , laghu ruksha guna and katu vipaka suppresses kapha which is the main cause behind Kaphaja Yoni roga, hence it is one of the best formulation for kaphaja yoni roga.

References –

1. Kashinatha Shastri;editor, Charaka Samhita Vol II, edition 2011.
2. .Anti microbial activity of Ficus glomerata, Jagtap Supriya G et al, IRJP, 2012.
3. Antibacterial Activity of Ficus bengalensis Linn. Bark on Actinomyces Viscosus, Shandavi C. Bhangale et al,IJPS, Vol. 2 (1), 2010, 39-43.
4. P.V Sharma, Dravyaguna Vigyan, Vol II, edition 2007
5. Kaideva Nighantu
6. Dhanavantari Nighantu (D.N Amradi varga , 72)
7. Bhava Prakash (B.P Pushpa varga 56)
8. Kashinatha Shastri;editor ,Anonymous Charaka Samhita , Vol I & II, edition 2011
9. P.V Sharma; editor , Anonymous Sushruta Samhita, Vol I,II & III, edition 2011
10. Atrideva Gupta; editor , Anonymous Ashtanga Hridaya, Vol I & II edition 2009.

Anaesthetic Management of Cardiac Sarcoma and Recurrent Massive Pericardial Effusion: a Case Report

*** Singh RB, *Taty M, Dubey *RK, **Singh S.**

Abstract:A 18-year old female presented in outpatient department with chest pain and dyspnoea during routine work with gradually increasing severity.On examination she was dyspnoeic but stable. Her vitals were as follows: heart rate 122 / minute, blood pressure 114/60mmHg, respiratory rate 26/ minuteand SpO_2 - 94%. On auscultation, heart sounds were diminished with large area of cardiac dullness on percussion. She was investigated, diagnosed and pericardiocentesis was done and patient was discharged to home .Patient was re- admitted with same problem. Her CT thorax was performed and large anterior mediastinal mass measuring 13.2x12.1x 17.0 cm with large pericardial effusion with left pleural effusion was diagnosed.Pericardectomywas done after preparation and patient was discharged to home after 2 week of operation.

Key Words:Anaesthesia, Pericardial Effusion, Pericardectomy

Introduction: The pericardial effusion is abnormal accumulation of fluid, blood or pus in the pericardial space leading to rise of intra pericardial pressure and compression of all cardiac chambers [1].The pericardial space is lined by parietal pericardium and visceral pericardium. The space between 2 layers contains about 20ml to 50ml of fluid which serve as several protective functions. The pericardial pressure varies with respiration between -4 mmHg and +4 mmHg .The parietal pericardium is relatively stiff fibrous membrane;therefore slow accumulation of fluid in pericardial space causes gradual stretching and large amount of fluid can be accumulated without significant increase in intra pericardial pressure where as rapid accumulation of even small amount may be symptomatic[2,3]. The increased pressure on heart prevents venous return and ventricular filling during diastole leading to reduced stroke volume, cardiac output and hypotension. The effusion may be in response of local or systemic disease which may develop in short time or takes months to produce symptoms.The management of symptomatic pericardial effusion or tamponadeis pericardiocentesis or surgical window pericardectomy. Acute accumulation more than 100ml will produce features of tamponadewhereas chronic collection of 1500ml to 2000ml fluid may occur with minimal effect on cardiac output[2].

Case Report:A 18-year old female patient presented in outpatient department with chest pain and dyspnoea during routine workwith gradually increasing severity of dyspnoea and chest pain for last 1month.On examination, her heart rate was 122/minute, blood pressure 114/60mmHg,respiratory rate

***Department of Anaesthesiology,**Department of Cardiothoracic and vascular surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi – 221005**

26/ minute andSpO_2 94%. On auscultation, heart soundswere diminishedwith large area of cardiac dullness on percussion.Chest X ray (PA view) showed large globular cardiac shadow with left lower lobe collapse (fig1). In ECG, heart rate was 128/ minute,short PR interval,decreased T wave in all chest leads and low voltage ECG,Her haemoglobin was 9.1gm/dl, total leucocytes count 10400/$mm^{3,}$ platelet count 2lakhs 56 thousands, serum Na^+ 128.3mEq/L, K^+ 4.2 mEq/L, Cl^- 96.1 mEq/L,serum urea 49.8 mg/dl, serum creatinine 0.8mg/dl, serum protein 7.1gm/dl, albumin 3.7gm/dl, SGOT 195 u/L,SGPT 201u/L. 2D-echo was suggestive of large pericardial effusion with dense synachae, loculated round shaped mass seen in pericardial cavity. IVCdilated and collapse during inspiration, normal LV with LVEF 61%, no diastolic dysfunction, no MR,TR, no regional wall motion abnormality. After diagnosis, ultra sound guided percutaneous pericardiocentesis was done and about 700ml of haemorrhagic fluid was drained and send for cytological and biochemical examination.After 20 days of pericardiocentesis, patient again developed dyspnoea and restlessness. Her CT thorax was performed and large anterior mediastinal mass measuring 13.2x12.1x 17.0 cm with large pericardial effusion with left pleural effusion was diagnosed. The patient was planned for pericardectomy afterpreparation.

In operation room, patient was anaesthetised with midazolam 2 mg, fentanyl 60 microgram, ketamine 50mg,thiopentone 200mg andvecuronium 6mg. Patient was intubated with appropriate size double lumen tube and anaesthesia was maintained with oxygen, nitrous oxide,Isoflurane. ECG, Non invasive blood pressure (NIBP), Central pressure pressure (CVP), pulse oximeter, end-tidal carbon di-oxide ($EtCO_2$) temperature and urine output monitoring was done.Pericardectomy was done through 5th inter costal space in left side and 1650ml haemorrhagic fluid was drained. Intra operative surgical finding suggested a large vascular mass, arising from left ventricle wall at lateral border which was not operable. Tissue from mass was taken for biopsy, haemostasis was maintained and chest was closed in layers. Patient was reversed from anaesthesia using injection neostigmine and glycopyronium, and shifted in ICU for observation after 3 hour of surgery. Patient discharged to home after 15 days of hospital stay.

Discussion: Pericardial effusions is a condition of abnormal accumulation of fluid in pericardial space . The outer layer of heart is made of fibrous tissue which does not easily stretch , and once fluid begins to enter the pericardial space, pressure starts rising and if continue to accumulate it compresses the heart and forces the septum to bend in to left ventricle leading to decreased stroke volume[4]. Pericardial space is lined by visceral and parietal pericardium and this space contain about 20ml to 50ml of fluid that serve as lubricant to minimise friction when heart beats. The parietal layer is less stretchable and rapid accumulation can be lethal leading to cardiac tamponade. The gradualaccumulation over months may reach up to 1500 – 2000ml before patient become symptomatic[2].Our patient presented with gradual onset of dyspnoea over 1month and after admission and confirmation of diagnosis, ECHO guided pericardiocentesis was done and patient become symptom free and discharged from hospital.Transoesophageal echocardiography (TEE)

guidedpercutaneous pericardiocentesis is the method of choice for pericardial effusion while pericardial window by open surgery or VATS may be useful.[5]Readmission with same symptoms after 15 days forced to obtain CT thorax for further confirmation of diagnosis. A mass originating from left ventricle projecting in pericardial space was diagnosed. Recurrent hemorrhagic pericardial effusion is well described feature of cardiac angiosarcoma. Primary cardiac tumors are rare, with an autopsy prevalence of 0.001 – 0.030%[6]. Malignant pericardial effusion usually results from metastatic lung and breast malignancies or lymphoma, about 10 to 20% of primary cardiac tumors are malignant, angio sarcoma being most common(35 to 40%)[7].

Pericardectomy or pericardial window is the treatment of choice for recurrent pericardial effusionunder general anaesthesia[7]. The induction of general anaesthesia in patient with large pericardial effusion is extremely hazardous and may precipitate cardiac arrest. Ketamine is the drug of choice for induction of anaesthesia in such type of patients because venous return to the heart is increased by rise of peripheral muscular and venous tone. Pancuronium is the preferred muscle relaxant for such patients and generous intra venous fluid administration is useful for maintaining venous return.Intermittent positive pressure ventilation in presence of large pericardial effusion results in life threatening hypotension which is more prominent in hypovolemic state. In this situation pre induction pericardiocentesis is recommended or ketamine is used as induction agent to maintain SVR and venous return. In general inotropic agentsthat increases stroke volume and support systemic resistance are also used[2].

References:[1] David H.Spodick. Current concepts, Acute cardiac tamponade. N Engl J Med 2003;349:684-90.

[2] Collins D. Critical Care and Resuscitation 2004; 6: 54-58.

[3] Hancock EW. Cardiac Tamponade. Med Clin N Am 1979:63:223-237

[4] Porth, Carol; Carol Mattson (2005). Pathophysiology; Concepts of altered health states (7th ed.). Hagerstwon, MD: Lippincott William& Wilkins, ISBN 0-7817-4988-3.

[5] HasanAli Gumrukcuoglu, DolunyOddabasi, SerkanAkdag and HasanEkim. Management of cardiac tamponade . A comparative study between echo guided pericardiocentesis and surgery. Cardiology Research and Practice, Vol 2011,Article ID 197838.

[6]Poi Keong Kong, StasinosTheodorou, Elisabeth Beran, Hardial Singh WadihDimitri. Primary Cardiac Undifferentiated Sarcoma of the right atrium presenting with cardiac tamponade. Cardiovascular pathology 18 (2009) 110-113.

[7] Kaushik, Manu MD; Alla, Venkata M MD;Pasupuleti, Hunter et al.CardiacAngiosarcoma and recurrent pericardial Effusion. Southern Medical journal; August 2010-Volume 103- Issue 8-pp849-850.

[8]Maxwell Bryan G, Harrington Ketherine B, Kelly Nate E. anaesthetic management forre-entrysternotomy in a patient with full stomach and pericardialtamponade from left ventricular rupture. Case Report. Annals of Cardiac Anaesthesia, year 2013,Volume: 16, Issue: 1,page:51-53

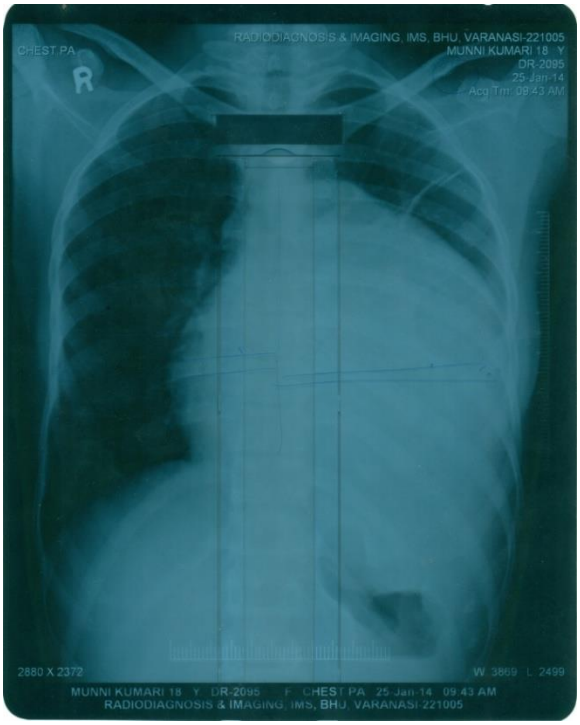

Figure 1: Chest X- Ray (PA View).

Table 1: Preoperative blood picture

Blood picture	**Serum electrolyte**	**Liver function test**
Hemoglobin 9.1gm%	Na 128meq/l	S. TP 7.1gm/l
White Blood Cellscount 10400/mm^3	K^+ 4.2meq/l	S. Albumin 3.7gm/dl
Differential leucocyte count 70/N,25/L,03/E,02/M	Cl^- 96.1meq/l	S. Bilirubin 0.7mg/dl
Platelet 2,56000/mm^3	Urea 49.8mg/dl	ALT 195U/L
	Creatinine 0.8mg/dl	AST 201U/L

Table 2: Vitals at different stages

Pre induction	**Intraoperative**	**Immediate Post Operative**
Heart rate 122/min	99/min	108/min
NIBP 114/60mmhg	102/67mmHg	119/78mmHg
SpO2 92%	100%	100%
CVP 26cm H_2O	18cm H_2O	16cm H_2O

Biochemical Study of Rohitakadhya Churn

Dr. Rashmi gupta* Dr.Gopal Das Gupta Prof. Lakshman Singh*****

ABSTRACT- Rohitakadhya churna is described in Bhaisajya Ratnavali yakritpleeha rogadhikar. Rohitakadhya churna contains 8drugs like-Rohitak, Ativisha, Bhunimba, Shunthi, Nagarmotha, Yavakshar, Navsadar, Kutaki. These drugs have effect on liver disorders (chronic cholecystitis & cholelithiasis). These drugs have various actions on liver disorder as per Ayurveda like- Deepan, Pachan, Visravana etc. As per chemical study of these drugs, these will hamper and reveres the pathogenesis of chronic cholecystitis & cholelithiasis. So Rohitakadhya churna is selected as one of the important preparations, which act on chronic cholecystitis & cholelithiasis.

Key word- Rohitakadhya churna, Liver disorders, chronic cholecystitis & cholelithiasis, Rohitak, Atvisha, Nagarmotha, Shunthi, Kutaki, Yavkshar, Navsadar, Bhunimba.

INTRODUCTION- Today chronic cholecystitis & cholelithiasis is an alarming disease. Now a day most of the fatty or non fatty person suffers from chronic cholecystitis & cholelithiasis. In this disease medical management is not sufficient only surgical treatment (open surrey or laparoscopic) is effective.

But In Ayurveda many compound formulation have the property to cure the chronic cholecystitis & cholelithiasis but in modern some drugs are available with their side effect and also very less effective.

So, one of these formulations Rohitakadhya churna described in Bhaisajya Ratnavali. This preparation work on liver disorder and vanish the pathology related to it, like the Sun removes the darkness. Chronic cholecystitis & cholelithiasis in Ayurveda can be correlated with Pittodar, Sakhashritkamla, Sannipatodar, Yakridalyodar etc.

In Ayurveda gall bladder stone as such is not described but in Charak Samhita, Gorochan formation in pittasaya of cow has been explained and used in various diseases. It can be understand as gallbladder stone. Many author described kloma placed just near the Yakrita. Its anatomy & physiology is similar to gall bladder. So that kloma is an organ, which can be consider as Gallblader.

CONTENTS OF ROHITAKADHYA CHURNA-

1. Rohitaka choorna
2. Ativisha choorna
3. Bhunimba choorna
4. Kutaki choorna
5. Nagarmotha choorna,
6. Navasadar choorna
7. Yavakshar choorna
8. Sunthi choorna.

***MS, PhD Scholar, S.R. Shalya IMS BHU,**MD, PhD Kayachikitsa IMS, BHU,**

*****Professor Shalya IMS, BHU**

General Properties of different drugs-

i) Rohitaka:Botanical Name- Tacoma undulate, **Family-** Bignoniaceae, **Rasa** - Katu, Tikta,Kasaya **Guna-** Laghu, Ruksha, **Virya** – Sita, **Vipaka-** Katu, **Karm-** Pittahara, **Used part-** stem bark
ii) Ativisha:Botanical Name- Aconitum heterophylum
Family- Ranunculaceae, **Rasa-** Katu, Tikta, **Guna-** Laghu, Ruksa,**Virya-** Usna, **Vipaka-** Katu **Karm-** Tridosahara, **Used part-** Tuberous Root
iii) Kutaki: Botanical Name- Picrorhiza Kurroa
Family- Scropularaceae, **Rasa-** Tikta, **Guna-** Ruksa, Laghu, **Virya-** Sita, **Vipaka-** Katu, **Karm-** Kapha-pittahara, **Used part-** Rhizome
iv) Sunthi:Botanical Name- Zingiber officinale, **Family-** Zingiberaceae, **Rasa-** Katu , **Guna-** Guru, Ruksha, Tiksna, **Virya-** Usna, **Vipaka-** Madhur, **Karm-** Vata-kaphahara, **Used part-** Rhizome
v) Bhunimba:Botanical Name- Andrographic peniculata, **Family-** Acanthaceae, **Rasa-** Tikta,**Guna-** Laghu, Ruksha, **Virya-** Usna, **Vipaka-** Katu, **Karm-** Kapha-pittahara, **Used part-** Panchanga
vi) Nagarmotha:Botanical Name- Cyperus rotundus, **Family-** Cyperaceae, **Rasa-** Katu, Tikta,Kasaya, **Guna-** Laghu, Ruksha, **Virya-** Sita,**Vipaka-** Katu, **Karm-** Kapha-pittahara
Used part- Tubers root
vii) Yavakshar:Chemical name- Mixture of potassium salts, K_2CO_3, **Rasa-** Katu, **Guna-** Usna, Snigdh, Sara, **Used part-** Kshara
viii) Navasadar:Chemical name- Ammonium Salt, NH_4Cl, **Rasa-** Amla, Lavan, **Guna-** Sita
Used part- Kshara
Specific property of drugs-
Rohitaka (Tacoma undulata): It works on haemopeotic system. ¼jDr izlknu½ Bilirubin metabolism is also indirectly related with the physiology of haemopeotic system, so it may act in case of cholelithiasis. It is also useful on Liver, Spleen, Gulma and Udara roga.

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In this way it is beneficial on the different clinical finding of cholecystitis & cholelithiasis.
Chemical Constituents & Biochemical study-

Tecoma undulate have been reported hepato protective potential (stem bark). Stem bark have chemical i.e. tecomin, β-Sitosterol, Stigmasterol, tecornelloside, undulatoside A&B, tecoside, Alphanamixinin.

Hepato protective potential of TU has been reported by methanolic and ethanolic extracts of stem bark in hepatocytes after using carbon tetrachloride and thioacetamide induced hepatotoxicity in rats respectively. Oral administration of TU extracts resulted in significant reduction in serum aspartate aminotransferase (AST), alanine aminotransferase (ALT), gamma-glutamyl transpeptidase (GGT), alkaline phosphatise (ALP), bilirubin, total protein, albumin and cholesterol levels. Further, TU supplementation reduced hepatic malonaldehyde levels and significantly improved hepatic glutathione along with significant improvement in the histopathology of liver.

Oral pre-treatment of TU extract (100 or 200 mg/kg) for 15 days was able to prevent elevation in serum AST, ALT, ALP, GGT and total bilirubin and decrement in the activity levels of hepatic antioxidant enzyme along with increment in hepatic lipid peroxidation induced by alcohol and paracetamol treatments. Till date there are no systematic studies carried out to identify the active compound in TU extract that is responsible for imparting hepatoprotection.

ii)Ativisha (Aconitum heterophylum) : It is useful in Nausea, vomiting, indigestion, and hyperbilirubinemia. **¼^fo"kPNfnZfoukf'kuh*& /k0fu0½**
Which are the important features of the cholelithiasis.
Chemical Constituents & Biochemical study- Atidine, hetisine, heteratisine, Diterpene alkaloids, heterophylline, heterophylline, heterophyllidine, heterophyllisine, hetidine, atidine & Atisenol, entatisene diterpenoid lactone from roots. F-dishydrçatisine, hetidine, hetisinone, heteratisine, hetisine, benzylleteratisine, beta-sitosterol, carotene and 3-isoatisine from rhizomes

The anti-inflammatory activity of ethanolic root extract of Aconitum heterophyllum (225, 450 and 900 mg/kg p.o) has been evaluated in cotton pellet-induced granuloma in rats. The extract has reduced inflammation as evidenced by decreased weight of cotton pellet in cotton pellet-induced granuloma in rats. The results demonstrate the anti-inflammatory properties of extract and the effects were comparable to diclofenac sodium, a standard non-steroidal anti-inflammatory drug.

As per this study we can be concluded that it act as anti-inflammatory for chronic cholecystitis & cholelithiasis.

iii) Shunthi (Zingiber officinale) : It may be useful on the different complication of indigestion which are produce in the pathology of cholelithiasis**. focU/kkukg'kwyuqr~* & lq0lw0 46**

Chemical Constituents & Biochemical study-

The characteristic odor and flavor of ginger is caused by a mixture of zingerone, shogaols and gingerols, volatile oils that compose one to three percent of the weight of fresh ginger. In laboratory animals, the gingerols increase the motility of the gastrointestinal tract and have analgesic, sedative, antipyretic and antibacterial properties. These properties of Shunthi are helpful for altering pathogenesis of chronic cholecystitis & cholelithiasis.

iv) Bhonimba (Andrographic peniculata) :

Bhonimba is kapha, pitta doshahara, which are the important for the pathogenesis of extra hepatic billiary Lithiasis. It may act on sannipattaj jwara which is one of the symptoms in some cases of cholelithiasis. **^lfUuikrToj'okldQfiÙkkònkguqr~A* &Hkk0iz0**

Along with that it also potentiates the liver function.

Chemical Constituents & Biochemical study-

Bhonimba is rich source of diterpenoids and 2-oxygenated flavonoids including andrographolide, neoandro-grapholide, isoandro-grapholide, 14-deoxy-11,12-didehydroandrogra-pholide, 14-deoxyandrographolide, andrographan, 14-deoxyandrographolide 19β-D-glucoside, homoandrographolide, andrographosterin, and stigmasterol. The primary bioactive component of the medicinal plant Andrographis paniculata is andrographolide. It is colorless crystalline bicyclic diterpenoid lactones and has a very bitter taste.

Pharmacological benefits of Andrographis paniculata are Hepatoprotective activity, Immunological benefits, Anti-inflammatory activity, Respiratory system benefits, Antimalarial activity, Antidiarrheal and intestinal effects. These activities are helpful for preventing pathogenesis of chronic cholecystitis & cholelithiasis.

v) Kutaki (Picrorhiza Kurroa) : It will work as a lithotrypsic and also promotes the liver function in case of cholelithiasis.

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Chemical Constituents & Biochemical study-

Main chemical constituents are glycosides picroside I, II and III, picrorhizin, kutkoside, kurrin, kuthinol, kutkiol, kutkisterol, kutkoside, androsin, apocynin, drosin and cucurbitacin.

1. It alters the structure of the outer membrane of the hepatocytes in such a way as to prevent penetration of the liver toxin into the interior of the cell.
2. It stimulates the action of nucleolar polymerase A, resulting in ribosomal protein synthesis and, thus stimulates the regenerative ability of the liver and formation of new hepatocytes.
3. It exhibits anti-inflammatory action on a variety of inflammatory models.
4. It modulates liver enzyme level.
5. It decreases level of lipid peroxidases and hydroperoxidases, free radical producing agents.
6. It shows curative activity against hepatotoxins like thioacetamide, galaclosamine and carbontetrachloride.

These pharmacological activities are helpful for preventing pathogenesis of chronic cholecystitis & cholelithiasis.

Vi) Nagarmotha (Cyperus rotundus) : It act on indigestion, nausea, loss of appetite may also promote the bilirubin metabolism. **'ys"ejäfiÙk fiÙkTojkfolkj?uhA* & /k0fu0**

Chemical Constituents & Biochemical study-The plant contains the following chemical constituents- Cyprotene, cypera-2, 4-diene, a-copaene, cyperene, aselinene, rotundene, valencene, ylanga-2, 4- diene, g-gurjunene, trans-calamenene, d-cadinene, g-calacorene, epi-a-selinene, a-muurolene, g-muurolene, cadalene, and nootkatene.

It is a drug of choice now for treating the majority of gastrointestinal problems like anorexia, vomiting, diarrhea, dysentery and specific and non-specific colitis. It acts as Antiinflammatory, Antipyretic, Analgesic, Hypolipidaemic, Anti-emetic, Antispatic, Gastroprotective, Antidiarrhoeal, Hepatoprotective, Anti-obesity, Antimicrobial, Antibacterial, Antioxidant, Anticancer and Cytoprotective effects.

vii) Navasadar : It will work as anti-sclerosing in cholecystitis.

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Chemically, it is an Ammonium Chloride or Salts of ammonium.

Ammonium salts are an irritant to the gastric mucosa and may induce nausea and vomiting. Ammonium chloride is used as a systemic acidifying agent in treatment of severe metabolic alkalosis, in oral acid loading test to diagnose distal renal tubular acidosis, to maintain the urine at an acid pH in the treatment of some urinary-tract disorders. Ammonium chloride is used as an expectorant in cough medicine. Its expectorant action is caused by irritative action on the bronchial mucosa. This causes the production of excess respiratory tract fluid which presumably is easier to cough up.

viii) Yavakshar : It acts as anti sclerosing in case of different type of litheasis.

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In this way, it may act on the different symptomatology of cholelithiasis as like indigestion, pain hyperbilirubinemia etc.

Chemical Constituents & Biochemical study-It contains mainly potassium chloride 50.8%, potassium sulphate 20.2%, potassium bicarbonate 12.6%, and Potassium Carbonate 6.8%, thus, it is a mixture of potassium salts.

Bile contains bile salt of potassium and Sodium. During pathogenesis of chronic cholecystitis & cholelithiasis, there is alteration of potassium and Sodium salt of bile acid. Yavakshar is help full for maintain homeostasis of bile and prevent the further progression of disease.

Conclusion-These biochemical finding and scientific study of all these drug of Rohitakadya churna are capable for preventing the progression of pathology of chronic cholecystitis & cholelithiasis. Rohitkadhya churna is also promoting the liver function and maintaining the chemical homeostasis of bile. This scientific study is supporting that, these drugs reverting histological changes of Gallbladder. As per Ayurvedic explanation there is involvement of vata and Kapha Dosha in samprapti of Pittodar, Rohitkadya churna as a compound formulation which is Vatakapha samaka and normalizes the physiology of Ranjakpitta. That is responsible for the formation of bile.

With this biochemical study Rohitkadya churna has been used clinically and found effective in the treatment of chronic cholecystitis & cholelithiasis.

Reference:

Prof. K. R. Srikantha Murthy; *Ashtanga Hridayam* - English translation, Vol. 1-3; Krishnadas Academy / Chowkhamba Sanskrit Series, 2005.
R.K Sharma and Bhagwan Dash; *Charaka Samhita* - English translation, Vol. 14; Chowkhamba Sanskrit Series, 2003.
Prof. P.V. Sharma , *Dravyaguna Vijanana Vol. II*- Chowkhamba Bharati Academy, 2003.
Prof. K. R Srikantha Murthy; *Sharangadhara Samhita*- English translation Chowkhamba Orientalia, 2005.
Kaviraj Kunjalal; *Sushruta Samhita* - English translation, Vol. 1-2; Chowkhamba Sanskrit Series, 2006.
Bhavprakash of Bhavamishra with Hindi commentary by Bhisangrata Mishra B.S., Chaukambha Sanskrit sansthan, 1980.
Bhaisajya ratnavali with Viyotini Hindi commentary by Shastri A.D., Ed. By Shastri R.D., Chaukambha Sanskrit Sansthan, Varanasi, 1993.
Chunekar K.C., Hindi commentary on Bhavaprakash Nighantu, Chuakambha Prakashan, Varanasi,1969.
Indian Medicinal Plants Vol.1, 2, 3, 4, 5 by Vaidyaratan P.S. Variene's Arya Vaidya Sal Kottakal.

Shallaki In Post Operative Pain Management

* Jaiswal RK **S.K.Singh *** Pande D N

ABSTRACT: In the present research work an indigenous drug shallaki (Boswellia serrata) was selected to evaluate for its efficacy as an anti-inflammatory & analgesic in the postoperative pain management. Shallaki niryasa is a traditional remedy in Ayurvedic medicine ,used in India for variety of inflammatory diseases including rheumatoid arthritis, osteoarthritis etc. The main constituents of the gum resin are boswellic acids and other compounds such as volatile oils, terpinola, arabillsa, xylone, phlobaphener etc. shallaki niryasa has been shown to possess anti inflammatory & analgesic properties.

Key words: niryasa, haemorroidectomy, Induction, dizziness.

Introduction: The trial drug shallaki (Boswellia serrata) was used for post operative pain management. This trial drug shallaki was used in the form of niryas & compared with tab. Diclofenac sodium. In the present clinical study 40 patients of ASA grade-1 & 2 were selected and posted for various surgical operations e.g. herniorraphy, primary threading, haemorroidectomy, pilonidal sinus etc. The patients were randomly divided in two groups , consist of 20 patients each. All the patients of group-A were given Tab.diclofenac sod.-50 mg at 10 P.M. (previous night) & 90 min. before operation, orally with an ounce of water, while the patients of group-B was given trial drug shallaki niryas 3cap. Of 1 gm each at 10 p.m. (Previous night) & 90 min. before operation, orally with an ounce of water. However, inj. Glycopyrrolate bromide 0.2mg i.m. was given 60 min. before surgery to all the patients of each group. Evaluation of response of trial drug as a premedicant was assessed on following parameter-

Requrement of 1st analgesic dose in postoperative period:

Material & Method: After Collecting & confirming its validity by Dravya Guna Deptt., the capsule of Shallaki Niryasa was prepared in Ayurvedic pharmacy of B.H.U with standard preparatory methods.

Dose of Shallaki niryas:3 capsule (1 gm each) in the dose of 3gm at 10 P.M of previous night & 3 capsule (1 gm each) 90 minute before the operation, was the standard dose regime for trial group.

Sr.Medical Officer, S.S.H., B.H.U.. **Anesthesiologist, VaranasiProf.&Head,Deptt. of Sangyaharan, IMS, BHU.**

Selection of the Patients:In the present study 40 patients of the either sex of A.S.A grade I & II undergoing Herniorraphy, B.L.T.L ,primary threading, prostectomy & pilonidal sinus were related for group A & Group B.The selected patients were of the standard population i.e of narrow age wt., height & similar physique. The patients were examined before giving premedication to ensure that no pathological condition existed which could influence the various parameter of the study.

Grouping of Patients: The selected patients were randomly divided in to two group. Group A & group B.

Group A – Group A(Control) consisting of 20 patients were planned for Surgical Procedures under spinal Anaesthesia.The patients of group A were given tablet Diclofenac sod. 50 mg. at 10 p.m. of previous night & 90 min before operation orally with an ounce of plain water & surgery was done under spinal Anasthesia.

Group B (trial) : The patients of group B were given 3 caps of of shallaki niryasa (1 gm) each at 10p.m. of previous night & 90 min before operation orally with an ounce of plain water & surgery was done under spinal Anaesthesia.However inj. Glycopyrrolate 0.2mg i.m. was given to the patients of all the groups 1 hr. before operation

Preoperative preparation: After one hr. of premedication the patients were re-evaluated thoroughly regarding their vital signs etc. & observation were recorded on standard proforma for the study.A patent intravenous line with Ringer lactate solution was maintained by identical size intravenous canula (venflan-18G). After adequate preloading, patients were transferred to operation theatre. Induction of Anaesthesia was done by lumber subarachnoid block (LS.A.B) in lateral position keeping their head on the pillow .Lumber puncture was done in all the cases by using 25G spinal needle by midline opproach After ensuring free flow of C.S.F. at the rate of 1 drop/sec. . Inj. Bupivacaine 0.5% (heavy) 2.5ml was administered with bevel of needle maintained in cephalic position, the needle was withdrawn & the skin prick was covered with sterile gauze piece. The patients were asked to change their posture to supine position with the help of assistant. Now adequate regional block was identified by absence of pin prick and touch sensation in operative area.

All the changes in vital status like B.P., Pulse, Respiratory rate ,Oxygen saturation was recorded at every step of study.

Undesirable effect like dizziness, nausea and vomiting were recorded as present or absent.

Requirement of 1st dose of analgesic: After surgery when the patients complained the minimal pain sensation after the weaning off effect of anaesthesia.Then the requirement time of 1st dose of analgesic drug was recorded in both groups. It is the 1st analgesic dose requirement time expressed in minute .Close observation was kept so that patients could not suffer from unnecessary painful state.

Post-anaesthetic sequelae: The sequelae of anaesthesia includes headache,diplopia,cranial nerve palsy, backache, retention of urine & bleeding from L.P. site etc. All those may be expressed till 48 hrs of post operative period.

Observation & Result: The mean age, weight & height are statistically comparable & identical ($p>0.05$) in the patients of both the groups.

The statistical comparison in mean of mean blood pressures are insignificant in both group at the level of before premedication vs after premedication, before premedication vs during subsequent Anaesthesia & before premedication vs after recovery from anaesthesia .

The statistical comparison in mean of mean pulse rates are insignificant in both group at the level of before premedication vs after premedication, before premedication vs during subsequent Anaesthesia & before premedication vs after recovery from anaesthesia .

The statistical comparison in mean of mean respiratory rates are insignificant in both group at the level of before premedication vs after premedication, before premedication vs during subsequent Anaesthesia & before premedication vs after recovery from anaesthesia .

The statistical comparison in mean of mean SpO_2 are insignificant in both group at the level of before premedication vs after premedication, before premedication vs during subsequent Anaesthesia & before premedication vs after recovery from anaesthesia .

The statistical comparison in mean of mean axillary temperatures are insignificant in both group at the level of before premedication vs after premedication, before premedication vs during subsequent Anaesthesia & before premedication vs after recovery from anaesthesia .

Requirement time of 1st dose of Analgesic: The mean of the 1st analgesic dose requirement time(in minutes) of all patients in group A (control) & group B (trial) were recorded and statistically compared.

G **roups**	**Mean ± SD**	**t-value**	**p-value**	**Remark**
GroupA(controle)	235.50±14.23	t=0.77	p>0.05	N.S.
Group B (trial)	230.29±20.65			

It is obvious from the above table that requirement of the 1st dose analgesic time in patients of both the groups were almost equal & identical time intervals. The statistical comparison of first dose analgesic requirement time between the groups are insignificant.

On the basis of the above observation this can be attributed that shallaki niryas can be used for the management of postoperative pain . The shothahar vedanasamak properties of shallaki niryas is well established in ayrveda and is being used in many painful inflammatory conditions.Along with the analgesic benefit of the trial drug shallaki niryas ; other observation like MBP, respiratory rate, pulse rate, temperature & oxygen saturation did not show any untoward effect which can harm the patients, operated under regional anaesthesia. This is an extra benefit of this indigenous drug shallaki niryas.

Conclusion: On the basis of the above observation on the patients, operated under regional anaesthesia, this can be concluded that –

- The trial drug shallaki in the form of niryas has vedanahar (analgesic) and shothhar (Anti-inflammatory) properties, most like tab.Diclofenac sodium used as premedicant

- Shallaki niryas did not produce any significant side effects when used as premedicant.

- No significant changes were observed in mean blood pressure, pulse rate, respiratory rate,temperature and oxygen saturation, during the whole course of the clinical study.

- The trial drug shallaki in the form of niryas is almost equally effective,anti-inflammatory and analgesic in comparison to control drug diclofenac sodium (50 mg).

References:

1.Bhav Prakash Nighantu 4th Ed. Pande, G.S. and Chunekar, K.C. Chow, Vidya Bhawan, Varanasi. (1959).
2. Bhava Prakash: Vidyotini Hindi Comm. by Shri Brahma Shankar, Chaukhamba Sanskrit Series Office, Varanasi Ist Part (V ed.). (1969)
3. Charak Samhita: Text with English Translation and Critical Exposition based on Chakrapani. Ayurveda Deepika by R.K. Sharma and Bhagwandas: Chaukhamba Sanskrit Series, Varanasi (1990).
4. Chaurasia S.B. – Studies of Rasna (P. Lanceolata) in management of Pain 1998. MD Thesis ,IMS,BHU,VARANASI.
5. Ghosh, R.K. et al.: Clinical studies on the indigenous compound (Nirgundi, Erandmool, Bala) as analgesic in Post operative pain. 1995. IMS, BHU, VARANASI
6. Maurya B. N. Evaluation of Shigruguggulu in Sangyaharan as Vednahar (pain relieving) thesis of M.S. (Ay) Sangyaharan December 2004, IMS BHU, VARANASI.
7. Medhi Champak, Pande D.N., Evaluation of Shigru in Sangyaharan as Preanaesthetic agent. (2003) , IMS, BHU, VARANASI.
8. Mishra P.R., Guggulu in the management of post-operative pain, M.S. (Ay.) Sangyaharan Thesis 1998 I.M.S., B.H.U., VARANASI.
9. Mishra Y.K., Pandey K.K., Pande D.N. :Role of Dashmool ghanvati in the pain management of the patient operated under regional block thesis of M.S. (Ay) Sangyaharan December 2007, IMS BHU,VARANASI.
10.Mishra S.K., Pande D.N., Evaluation of vaca as Premedicant.,MD Thesis.(1998) IMS BHU,VARANASI.
11. Pai A. et. al Evaluation of Rasna as premedicant under Sarvadaihik Sangyaharan. MD Thesis (1999) IMS, BHU, VARANASI.
12. Pande D.N. , Poorvakarama in relation to anaesthesia, M.D. (Ay.) Thesis, (1986), IMS, BHU, VARANASI.

Critical analysis of a pain & its unique approach of management by AcharyaSushruta

*****Dr. Santosh Y M **Dr. Sudheer Pandey *** Dr. Pradeep S. Shindhe *Dr.Taj D * Dr. AmrutaWali

Abstract: Pain is a commonest symptom with extraordinarily complex sensation which is difficult to define and measure in an accurate, objective manner.Concept of anesthesia came into existence very much with origin of pain. Surgery is the field where pain is inevitably encountered and management of this factor is part of the surgery too. Pain management (also called pain medicine or algiatry) is a branch of medicine employing an interdisciplinary approach for easing the suffering and improving the quality of life of those living with pain. *Ayurveda* considers pain as both a disease and symptom. In *Ayurvedic* classics pain can be referred to *shoola*, *vedana*, *ruja*, *ruk* etc. *AcharyaSushruta* being a surgeon was well aware of significance of pain and its management in surgery; he has made best efforts by using techniques available in those days to tackle pain. One of the techniques i.e.*Madhyapana* (consumption of an Alcohol) which lay down revolutionary step in the development of currently established branch of Anesthesia. Hence present review is an effort in understanding the concept of pain and its management through interdisciplinary method as per *AcharyaSushruta.*
Key Words: Algiatry, Shoola, Vedana

INTRODUCTION: Pain has always been of a great challenge in surgical discipline and hence large numbers of researches are trying to provide pain free, comfortable surgical and post-operative period. As pain is a subjective and multidimensional experience. Untreated surgical pain may result in cardiovascular complications and poor wound healing. Adequate post-operative pain relief must be an integral part of administration of anesthesia. Importantly, post-operative pain management is included as one of the important discharge criteria in day care anesthesia. Inadequate post-operative pain relief may result in clinical and psychological changes that may increase the morbidity and mortality as well as the cost of treatment as a whole, in addition to decreasing the quality of life post-operatively.
[1]It is observed that up to 50% of patients may develop chronic post-operative pain including minor depression[2]and pain-related catastrophizing.[3]Hence a distinct element of chronic post-surgical pain (CPSP) is described, which is related to bio-psychosocial factors.[4,5]The depression, psychological vulnerability stress and late return to work are closely related to CPSP.

*** Asst. professor Department of ShalyaTantra** PG Scholar Department of Sangyaharan*** Reader ,Department of ShalyaTantra**

Correspondence address: Dr. Santosh Y M ,,Asst professor Department of ShalyaTantra,

K L E University's Shri. B M K Ayurveda MahavidyalayaShahapur Belgaum

drmysantosh@gmail.com, Contact No: - 9964498818

This CPSP is not only observed following a major surgery but can be seen after a minor procedure. *Acharya Sushruta* has given validated explanations regarding the concept of pain; and practiced different techniques to tackle the pain. These various methods of pain management paved a way to the establishment of new branch called as Anesthesiology. PAIN CLINIC is the currently upcoming OPD which is managed by Anesthetist. So the critical analysis of the data given by *AcharyaSushruta* is very much essential for today's evidence based clinical practice .

DEFINITION OF PAIN:*AcharyaSushruta*While giving the definition of *shalya*, said that the factor which causes *badha* (Unpleasant Sensation) *to shareera*(Body) and *mana*(mind)where the word *badha*refers to the Pain which is an unpleasant factor. Another important point to note is *Acharya* has highlighted *Badha* to *mana*(Mind) which suggests about the component termed ***Psyche*** which is gaining importance nowadays.[6,]While listing the causes of pain Acharya has quoted Vitiation of *Vata Dosha*as the primary cause which may be better correlated to neurological response to various degree of abnormal stimulation.[7]and*Acharya* has clarified this fact by giving the following reference[8,]where he says that *marmaghaatha*(vital area injury) causes severe *vataprakopa* and leads to severe pain.

Acharyas have used different terms for pain like *vedana,Shula,badha, Ruk,*etc but all are suggestive about the discomfort or an unpleasant feeling Caused due the various etiologies like inflammatory origin, Neurological origin, Vascular origin[9]etc. By going through these different nomenclature used for denoting Pain it appears that *Acharya Sushruta* has categorized the pain as localized and generalized entity which makes significant difference in the management, and also suggests about the intensity and grading of the pain. Even though, *vata* being the prime cause of the pain but the involvement of other *Doshas* are also identified by the nature of pain which speaks about the fine assessment of the pain. This kind of an assessment is helpful in deciding the stage of a disease which would rather help in deciding the type of management at different stages like in *Aamavasta,* (Stage of Induration) *Pachyamanavasta* (stage of Suppuration) surgical intervention is not an ideal choice but it would be an appropriate choice in *Pakvavasta*(stage of Pus formation). Failure to identify would result in many complications. These all can be prevented by the finer assessment of disease through pain factor[10].

Pain as a Diagnostic Aid[11]**:**Pain anywhere in the body is always suggestive of injury either at the level of tissues or at the cellular level. Presence of which is considered for diagnosing the *shalya* (Antigen) which could be either visible or invisible cause. Here *Acharya* used this pain as diagnostic criteria to locate the *shalya* in the body. This decides about the line of management.

Pain as Post-Operative Complications: It is known fact that the surgery is stressful process where finer assessment is required to get pain free post-operative period and which is discharge criterion too.As *AcharyaSushruta*also identified pain as Usual consequence of surgical procedure and also given few more reasons for pain in the post op period like

- Pain as a usual consequence of surgical procedure[12]
- Pain as result of Faulty technique by surgeon.[13]
- Pain as a result of improper post-operative regimen by patient[14]
- There are few references, where appearance of pain is indicative of extinction of a procedure like*Jaloukacharana*[15] (Leech therapy) similarly relief of pain after certain procedures suggests about the proper procedure too.

As Prognostic Factor[17]**:**Prognosis of the certain conditions was made on the basis of presence and absence of pain factor by *AcharyaSushruta* which is proved by in the following references like if healthy wound presents with pain it indicates secondary infection which hinder the healing similarly in unhealthy wound if pain subsides which indicates disinfection of the wound & it is progressing towards healing. In both the cases it suggests about the prognosis of the wound[16]. So sudden onset or the disappearance of the pain in certain surgical conditions prove most prognostic significance[17]. This kind of assessment would increase the success rate of surgical management.**„„**

PsychosomaticComponent: As pain is known to influence psychological wellbeing of the patient hence it becomes part & parcel of the surgical discipline to asses about the vulnerability of the patient to pain prior to the surgery. This is effectively taken care by *acharayaSushruta*through assessing the mental strength and pain threshold of the patient. Patients with *Satwa* and *Pranaprabalya*can tolerate stress *(Glani)* and pain*(Vyatha)*of various procedures much better than other patients. This assessment may help in reducing the dose of analgesics. This suggests about the fine assessment about the psychological component involved in the pain.

MANAGEMENT - By going through the references in the Sushruta Samhita it clearly suggests about the concept of pain according to Acharya Sushruta and he managed the pain accordingly as follows

- As local entity
- As systemic entity
- As acute condition
- As a chronic pathology
- Management of psychosomatic component

Alepa[18]Swedana[19]&Vimlapana[20]

*Alepa[18]*means an external application of medicines which is one more unique way of delivering the analgesic effect of drugs to the specified area. The efficacy of the same was practically analyzed by *AcharyaSushruta* and proved by an illustration. *Alepa* seems to have effective role in *(ugraruja)* acute pain or early stages of the conditions *Vrunashoph* (inflammatory indurations).This can be correlated to the latest Transdermal analgesic patch.

Swedana[19]is type of fomentation procedure where some of the painful regions are applied with certain degree of temperature by various means for a specified duration. Here *swedana*is to be incorporated in *Daruna* (Chronic) *Kathina*(indurated) painful lesions.

Vimlapana[20]is the process where gentle pressure is exerted in and around the affected part with pulp of the fingers. By this process localized and immovable vitiated *Doshas* are liquefied and made to move away from the site of pain through *Vimlapana.* This procedure can be effectively practiced in area where there is constant *MandaRuja* (dull pain)

***Visravana[21]Snehapan[2:2]*:**Here *visravana[21]* is drainage of vitiated blood from a localized congestion which occurs due to the acutely inflamed indurated lesion. Because of the local toxicity hyperemia sets in & results in congestion. Which results in severe pain & such congestion is drained through different methods of *Visravana* (bloodletting) procedure. This procedure has an addition effect of prevention suppuration.

In *Snehapan*[22]*Snehas* (Medicated oil) are used as internal medicines to get rid of the pain. Depending upon the predominance of *Doshas**Sneha*May vary. Along with this *VamanadiShodhana karmas* can also be considered under the means of pain management which act at the root level and brings the homeostasis of the *Dosha* this itself reduces/cures the *vedana.*

Parishek[23] **:***Parishek*[23] is method of pouring the medicated liquid from a distance for specific period. As explained above the primary cause of pain is tissue injury which is due to any accident or purposeful surgical procedure to ward off such pain occurring due to exposer to different weapon *Parishek* of the region with *UshnaAnu taila* would prove to be ideal.

Dhupan[24] **:**Surgical site infection is nowadays burning issue which is causing interference in the early uneventful recovery of the patient in the post-operative period. This problem was handled very effectively by means *Dhupan* (Fumigation) Procedure. Here *Dhupan* was aimed at alleviating the pain which is superficial and it has additional benefits of fumigation like sterilization of wound where the growth of micro-organisms is prevented.

Agnikarma[25] **:***Agnikarma* is another method which is used in severe pain in *twak (Skin), snayu (tendon) sandhisthithavedana (Joint pain)* along with this it also arrests the bleeding which is an additional effect.

Basti[26] ***Nasya***[27]***& Dhumapana***[28] :In *basti*[26] medicines are administered through rectal route. Primarily *basti* is indicated for vitiated *vata dosh* which is said to be the cause of pain. Here *basti* can be considered as best line of pain management for painful lesions of lower extremities. It can also be used as an effective generalized pain management technique too.

Nasya[27]*&Dhumapana*[28] are the different routes of drug administration which are used to relieve the pain in *urdhvajatrugata Pradesh* (Head & neck). In *Nasya* drugs are administered through nasal route and it is considered as *shirasodwaram* hence this route may be used to manage pain in the region of Shiras (head). In *Dhumapana*drugs are administered through inhalation method. These two methods can be considered as modes of acute pain management in the head & neck area.

Madhyapana[29] **:***Madhyapana*is a method where self-generated alcohol was used for oral administration. This method was employed prior to the surgery where after consumption of an alcohol patients were taken for surgery. Effect of alcohol would increase the pain threshold in the patient. Hence pain caused by surgery was not felt by the patient. This is one of the stepping stone for the origin of branch called ANAESTHESIA-Finally by discussing about all above said modalities we can roughly classify these treatments into following category but still there is lot of room left for the Ayurvedic scholars to explore these methods further and adopt them accordingly.

CRITICAL ANALYSIS OF THE MANAGEMENT MODALITIES:

Local entity	Generalized entity	Acute condition	Chronic pathology
Alepa	Parisheka	Alepa	Swedana
Agnikarma	Sweda	Bandhana	Shodanasarpi
Vranadhupana	Snehapana	Agnikarma	Vamanadishodhan karmas
Bandhana	Madhyapana	Raktamokshana	Basti
Ushnagrita	Basti	Ushnasarpi	
SheetaUshnakriya	VamanadiShodhana karmas		
	Raktamokshana		

MANAGEMENT OF PSYCHOSOMATIC COMPONENT: Confidence boosting in the form of words which are pleasant, consoling would alleviate the intensity of pain. Considering ‘shoka’ in itself as shalya , ‘Harshana’ listed among upayantra also helps in relieving tears there by aid in Achieving better pain management.

DISCUSSION : After going through the analysis of pain it is clear that surgery can't be imagined without pain & it is still more influenced by psychology of the patient. Although definite pattern for grading pain is not noticed in *Sushruta Samhita*, there are ample references suggesting that he has made initiative efforts towards classifying and grading of pain, which was done on the basis of *dosha* involvement. *Acharya Sushruta* has also given due consideration to the involvement of psychosomatic component and its management which is getting more popularity in current practice of medicine. These factors suggest the depth of understanding of pain by *Acharya Sushruta.* We have seen two basic lines in the treatment of pain one aiming at reducing the intensity of pain and other concentrating more towards the irradiation of causative factor either at the level of doshas or at the level of *vyadhi. Acharya Sushruta* approach to the pain management was not only through the medicine but also had holistic approach which played major role in treating the psychosomatic component of pain. This is now a day called as counseling of the patient. The modalities of treatment used for the pain management were also having some of additional effects like *vrana shodhan, ropan* etc. Cause of pain is always due to *dushita vata* which may or may not be associated with other *Doshas* hence treatment is basically aimed at *vata shamana* or *vatahara* which helps in the control of the pain and cure of the pain as well. Treatment modalities adopted by *Acharya Sushruta* for pain clearly denotes that the treatments were aimed at mitigating the *vata* at the *sthanika* level or at the root level through systemic approach. So Acharya Sushruta effectively managed pain through various methods. With the advent of technology many advanced techniques of pain management have been evolved which have greatly increased patient care and satisfaction also. But these technological developments can't deny the supreme efforts of sushrutas era. Many of the current technique use the ancient concepts of Acharya Sushruta. Now a day it is observed that proper education and treatment of post-operative pain has increased the positive psychological impact on these patients. This is a proved fact in the Acharaya Sushrutas period.

CONCLUSION: Discussion makes it clear that AcharyaSushruta has diagnosed the various types of pain and was able to manage to maximum possible extent by using the techniques available in those days with minimum adverse effects and maximum additional effects. Even though modalities used by Acharya Sushruta is effective in treating all types of pain there is enough room left for Ayurvedic scholar of modern era to evaluate and group these modalities based on the specific conditions like

Acute / chronic and further can be applied for local as well generalized pain management. It is again important to understand the fact that the purpose of any treatment is to eradicate the pain which is the aim of all systems of medicine, so it is not worth while in debating and comparing the pain management explained in our systems with other systems which include technique like Anesthesia. As per the current technology a new Ayurvedic technique should be developed or any such modification should be tried in these procedures to combat the pain so whether it is possible or not we have to wait and watch.

REFFERANCES:

1. Apfelbaum J, Chen C, Mehta S, Gan T. Postoperative pain experience: Results from a national survey suggest postoperative pain continues to be undermanaged. AnesthAnalg. 2003;97:534–40. [PubMed]

2. Dimova V, Lautenbacher S. Chronic postoperative pain. Epidemiology and psychological risk factors.AnasthesiolIntensivmedNotfallmedSchmerzther. 2010;45:488–93. (article in German) [PubMed]

3. Papaioannou M, Skapinakis P, Damigos D, Mavreas V, Broumas G, Palgimesi A. The role of catastrophizing in the prediction of postoperative pain. Pain Med. 2009;10:1452–9. [PubMed]

4. Hinrichs-Rocker A, Schulz K, Järvinen I, Lefering R, Simanski C, Neugebauer EA. Psychosocial predictors and correlates for chronic post-surgical pain (CPSP) - a systematic review. Eur J Pain. 2009;13:719–30. [PubMed]

5. Akkaya T, Ozkan D. Chronic post-surgical pain. Agri. 2009;21:1–9. [PubMed]

6. Sushruta Samhita; Sutrasthan 7th chapter, 4th shloka, page no 28, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

7. Sushruta Samhita; Sutrasthan 17th chapter, 13th shloka, page no 72, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

8. Sushruta Samhita; Shareera sthan 6th chapter,20 shloka, page no 28, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

9. Sushruta Samhita; Sutrasthan 23rd chapter, page no 98, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

10. Sushruta Samhita; Sutrasthan 17th chapter, 14th shloka page no 73, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

11. Sushruta Samhita; Sutrasthan 26th chapter, 17th shloka, page no 109, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

12. Sushruta Samhita; Sutrasthan 5th chapter, 42nd shloka, page no 59, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

13. Sushruta Samhita; Sutrasthan 16th chapter, 4th shloka, page no 65, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

14. Sushruta Samhita; Sutrasthan 19th chapter, 10th & 14th shloka, page no 79-80, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

15. Sushruta Samhita; Sutrasthan 14th chapter, 45th shloka, page no 56, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

16. Sushruta Samhita; Sutrasthan 23rd chapter, 18th shloka, page no 99, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

17. Sushruta Samhita; Sutrasthan 28th chapter, 13th shloka, page no 115, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

18. Sushruta Samhita; Chikitsa sthan 1st chapter, 14, 21 & 22nd shloka, page no 5 & 6, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003
19. Sushruta Samhita; Chikitsa sthan 1st chapter 15th shloka, page no 5 kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003
20. Sushruta Samhita; Chikitsa sthan 1st chapter 21 & 22 shloka, page no 6 kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003
21. Sushruta Samhita; Chikitsa sthan 1stchapter 27th shloka, page no 6, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003
22. Sushruta Samhita; Chikitsa sthan 1st chapter 30th shloka, page no 6, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003
23. Sushruta Samhita; Chikitsa Sthan 8th chapter, 34thshloka, page no 47, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003
24. Sushruta Samhita; Chikitsa Sthan 1st chapter, 80th shloka, page no 10, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003
25. Sushruta Samhita; Sutrasthan 12th chapter, 10th shloka, page no 39, kaviraj Dr. Ambikadatta Shastri; Chaukhambha Sanskrita Sansthan Varanasi; 4th edition 2003

Failed spinal anaesthesia: mechanisms, management, and Prevention

Dr. Sudheer Pandey *, Dr Hemant D Toshikhane **

Abstract: The spinal (subarachnoid or intrathecal) anesthesia is generally regarded as one of the mostreliable types of regional block methods, the possibility of failure has long been recognized.Dealing with a spinal anesthetic which is in some way inadequate can be very difficult; so, thetechnique must be performed in a way which minimizes the risk of regional block. Thus, practitionersmust be aware of all the possible mechanisms of failure so that, where possible, thesemechanisms can be avoided. This review has considered the mechanisms in a sequential way: problemswith lumbar puncture; errors in the preparation and injection of solutions; inadequatespreading of drugs through cerebrospinal fluid; failure of drug action on nervous tissue; and difficultiesmore related to patient management than the actual block. Techniques for minimizing thepossibility of failure are discussed, all of them requiring, in essence, close attention to detail.Options for managing an inadequate block include repeating the injection, manipulation of thepatient's posture to encourage wider spread of the injected solution, supplementation with localanesthetic infiltration by the surgeon, use of systemic sedation or analgesic drugs, and recourseto general anesthesia. Follow-up procedures must include full documentation of what happened,the provision of an explanation to the patient and, if indicated by events, detailed investigation.

Keywords: anesthetic techniques, regional; anesthetic techniques, spinal; complications

INTRODUCTION: In general terms, block failure is usually ascribed to one of three aspects: clinical technique, inexperience (of the unsupervised trainee), and failure to appreciate the need for a meticulous approach. However, such broad categories reveal little about the many detailed ways in which an intrathecal injection can go astray within each of the five phases of an individual spinal anesthetic, these being, in sequence, lumbar puncture, solution injection, spreading of drug through CSF, drug action on the spinal nerve roots and cord, and subsequent patient management.

Mechanisms and their prevention:

Failed lumbar puncture: Inability to obtain CSF, sometimes referred to as a 'dry tap', is the only cause of failure which is immediatelyobvious. A needle with a lumen blocked at the outset is a theoretical possibility, but is most unlikely with modern equipment. However, both needle and stylet must be checked for correctness of fit before use, and the needle should not be advanced without the stylet in place becausetissue or blood clot can easily obstruct the fine bore needles used now. Otherwise, a failed lumbar puncture is virtually always because of either poor positioning of the patient or incorrect needle insertion, both factors being within the control of the anesthetist. Abnormalities of the spine (kyphosis, scoliosis, calcification of

*** Post Graduate Scholar ** Professor DepartmentofSangyaharana, KLE University Shri B M Kankanwadi Ayurveda Mahavidyalya Belgaum, Karnataka, India.**

ligaments, consequences of osteoporosis), obesity, and patient anxiety make both positioning the patient and needle insertion more difficult, especially in the elderly.

Positioning: The patient is placed on a firm surface; the lumbar laminae and spines are 'separated' maximally by flexing the whole spine (including the neck), the hips, and knees; rotation and lateral curvature of the spine are avoided; these points apply to lumbar puncture in both sitting and lateral horizontal positions; the former is usually an easier option in 'difficult' patients, but sometimes the reverse is true. The role of the assistant in achieving and maintaining the
Patient in the correct position cannot be underestimated.

Needle insertion:The midline approach, insertion should startprecisely in the mid-line, mid-way between the posterior spines, with the needle shaft at right angles to the back in both planes. Small, incremental changes in needle angleshould be made only if there is resistance to advancement;if resistance is met, cephalad angulation should be tried first, and such angulation may be appropriate from thestart if the patient is unable to flex fully (e.g. the obstetric patient at term). A degree of caudad angulation is sometimes needed, with a slight lateral direction being required very rarely.

Adjuncts:A calm, relaxed patient is more likely to assume and maintain the correct position, so explanation (before andduring the procedure) and gentle, unhurried patient handling are vital; light anxiolytic premedication contributesmuch to relaxing the patient; local anestheticinfiltration at the puncture site must be effective without obscuringthe landmarks, but must include both intradermal and subcuticular injection. Achieving the correct position is a particularchallenge in the patient in pain (e.g. from a fractured hip) and systemic analgesia (i.e. or inhalation) helps considerably. The aim of such adjuncts is to optimize the patient's position and to prevent any movement.

Solution injection errors:The appearance of CSF in the needle hub is an essential pre-requisite for spinal anesthesia, but it does not guarantee success, which also requires that a fully effective dose is both chosen and actually deposited in the CSF.

Dose selection: Studies of many factors influencing intrathecal drug spread have shown that the dose injected, within the range normally used, has only a small effect on the extent of a spinal anesthetic, but is far more important in determiningthe quality and duration of block. Overall, the actual dose chosen will depend on the specific local anestheticused, thebaricity of that solution, the patient's subsequent posture, the type of block intended, and the anticipatedduration of surgery.

Loss of injectate:The Luer connection between syringe and needle provides a ready opportunity for leakage of solution. A particularvariant of this problem being a leak through a defect at the junction of needle hub and shaft

Misplaced injection: Needle and syringe must be connected firmly, but great care should be taken to avoid either anterior or posteriordisplacement of the needle tip from subarachnoid to epidural space, where deposition of a spinal dose of local anesthetic will have little or no effect. Fluid aspiration, after attachment of the syringe, should confirm free flow of CSF and, thus, that the needle tip is still in the correct space, but such aspiration may displace the tip unless performed carefully, as may the force of the injection of the syringe contents. To prevent displacement at any stage, it has been advocated that the dorsum of one hand should be anchored firmly against the patient's back and the fingers used to immobilize the needle, while the other hand is used to manipulate the syringe

Anatomical abnormality: Intrathecal spread is governed by interplay between solution physical characteristics, gravity, and the configurationof the vertebral canal. Anatomical abnormalities that lead to problems with spread can be both overt and covert.The curves of the vertebral column are integral to solutionspread and any obvious abnormality, kyphosis, or scoliosis, may interfere with the process.

A very rare possibility, which is not apparent on examination, is that the ligaments that support the spinal cordwithin the theca form complete septae and act as longitudinal or transverse barriers to local an aesthetic spread.

Solution density:A solution with a density within the normalrange of that of CSF ('isobaric') will virtually guaranteeblock of the lower limbs with little risk of thoracic nerveblock and thus hypotension.Solutions with a density greater than that of CSF (hyperbaric) move very definitively under the combined influence of gravity and the curves of the vertebral canal

Inactive local anesthetic solution:The older, ester-type local anesthetics are chemically labile so that heat sterilization and prolonged storage, particularly in aqueous solution, can make them ineffective because of hydrolysis and hence they need very carefulhandling. Although the more modern amide-linked drugs (e.g. lidocaine, bupivacaine, etc.) are much more stableand can be heat sterilized in solution and then stored for several years without loss of potency, there have been anumber of reports attributing failure of spinal anesthetics to inactive drug.

Failure of subsequent management:Not all of a patient's claims of discomfort, or even pain, during a spinal anesthetic are the result of an inadequateinjection. A properly performed spinal anesthetic will produce complete somatic, and a major degree of autonomic,nerve block in the lower half of the body unless a specifically restricted method is used. However, ensuringthat this block occurs is only part of the process because the unaffected components of the nervous system requireconsideration and management. Specifically, this relates to conscious awareness of the clinical setting and of 'sensations' transmitted through unblocked nerves, with both factors possibly making the patient claim that the block has failed. This may not actually be the case, but patient management certainly has failed if such a claim is made when the block is actually as good as it could be.

Expectation plays a part, and good preoperative patient counseling followed by a supportive approachfrom the anesthetist during the operation is important in avoiding such problems, but so is the judicious andpro-active use of systemic sedative and analgesic drugs. Sufficient sedation to produce drowsiness, or even sleep(with appropriate monitoring), is rarely contra-indicated other than in the obstetric situation, and even there smalldoses may occasionally be useful.

Testing the block: In recent years, it has become almost mandatory, certainly in the obstetric setting, to test the level of block formally before surgery commences. This apparently sensible precaution may be difficult or impossible to undertake in some patients (for example the demented patient with a fractured neck of femur). Excessive focus on testing can also have a negative impact. Most patients will have some anxiety about the effectiveness of the injection, and this will be increased if testing is started too soon. Conventional practice is to check motor block by testing the ability to lift the legs, followed by testing of sensory block to stimuli such as soft touch, cold, or pin prick, all of which have their proponents.

Catheter and combined techniques:The great majority of spinal anesthetics involve a single, through needle injection and, as has been noted, thisrequires some certainty about its effectiveness for surgery. To take advantage of the rapid onset and profound blockof spinal anesthesia, both continuous and combined spinal–epidural techniques have been introduced toincrease flexibility. It is vital to leave no more than 2–3 cm of catheter within the dura to avoid this. In the combined technique, it is common

to inject a relatively small volume for the spinal component, so the problems that can result in a proportion not reaching the subarachnoid space are very relevant, but at least the epidural catheter can be used in attempts to rescue the situation.

Management of failure: Failure of a spinal anesthetic is an event of significant concern for both patient and anesthetist even when it isimmediately apparent, but it can have serious consequences (clinical and medico-legal) if the problem onlybecomes evident once surgery has started. If there is any doubt about the nature or duration of the proposedsurgery, a method other than a standard spinal anesthetic should be used. The trainee anesthetist should avoidover-selling the technique, especially in the early days of unsupervised practice. Promising that all will be achievedby one injection leaves no room for maneuver, but offering one injection to reduce pain and a second to ensure unconsciousness does. If a spinal anesthetic does fail in some way, the management options are limited; so, the first rule is to expend every effort in prevention.

Prevention is better than cure: Having made the decision to use a spinal anesthetic, theblock should be performed with meticulous attention todetail as has been indicated above. It is impossible to overemphasize this point.

The failed block: The precise management of the failed block will depend on the nature of the inadequacy and the time at which itbecomes apparent. Thus,some monitoring of the onset of the block and correct interpretation of the observations areboth vital. The slower the onset of motor or sensoryblock, the more likely is the block to be inadequate, so the more detailed this assessment should be, if most of the expected block has not developed within 15 min, some additional maneuver isalmost certainly going to be needed. The possibilities, their explanations, and suggested immediate responses areas follows:

(1) No block: the wrong solution has been injected, it has been deposited in the wrong place, or it is ineffective.Repeating the procedure or conversion to general anesthesiaare the only option. If, after operation, thepatient has significant pruritus, it is likely that only an opioid was injected.

(2) Good block of inadequate cephalad spread: the level of injection was too low, anatomical abnormality hasrestricted spread, or some injectate has been misplaced. If a hyperbaric solution was used, flex the patient's hips and knees and tilt the table head down. This straightens out the lumbar curve, but maintains a cephalad 'slope' and allows any solution 'trapped' in the sacrum to spread further. A variation with the same aim, but perhaps better suited to the obstetric situation, is to turn the patient to the full lateral position with a head down tilt, reversing the side after 2–3 min. If a plain (and usually slightly hypobaric) solution has been used, it may help to sit the patient up, but beware of peripheral pooling of blood.

(3) Good, but unilateral block: this is most likely because of positioning, but it is possible that longitudinal ligamentssupporting the cord have blocked spread. If the operation is to be on the anaesthetized limb, then the surgeon should know that the other leg has sensation, and the patient should be reassured and closely monitored. Otherwise, turning the patient onto the unblocked side if a hyperbaric solution was used (or the reverse for plain solutions) may facilitate spread.

(4) Patchy block (This term is used to describe a block that appears adequate in extent, but the sensory andmotor effects are incomplete.): causes of inadequate block are numerous and include all those discussedabove, but the most likely explanation is that the local anesthetic was at least partially misplaced, or that the dose given was inadequate. If this becomes apparent before surgery starts, the options are to repeat thespinal injection or to use a greater degree of systemic

Supplementation than was planned, the latter being the only option after skin incision. It may not be necessary to recourse to general anesthesia, sedation, or analgesic drugs often being sufficient especially whenpatient anxiety is a major factor. Infiltration of the wound and other tissues with local anesthetic by the surgeon may also be useful in such situations.

(5) Inadequate duration: the most likely explanation is that for one of several reasons an inadequate dose oflocal anesthetic was delivered to the CSF. Alternatively, lidocaine (intended for skin infiltration) was confused for bupivacaine, or the operation has taken longer than expected. Systemic supplementation or infiltration of local anesthetic may tide matters over, but often the only option is to convert to general anesthesia.

References:

1 Adler R, Lenz G. Neurological complaints after unsuccessful spinal anaesthesia as a manifestation of incipient syringomyelia.Eur J Anaesthesiol 1998; 15: 103–5

2 Armstrong PJ.Unilateral subarachnoid anaesthesia.Anaesthesia 1989; 44: 918–9

3 Atallah MM, Shorrab AA, Abdel Mageed YM, Demian AD. Low-dose bupivacaine spinal anaesthesia for percutaneous

nephrolithotomy: the suitability and impact of adding intrathecal fentanyl. ActaAnaesthesiolScand 2006; 50: 798–803

4 Barker AE. A report on clinical experiences with spinal analgesia in 100 cases. Br Med J 1907; i: 665–74

5 . Batas D, et al. Resistance to local anaesthetics: a case report. http://bja.oxfordjournals.org/cgi/qa display/short/brjana_el;1576

6. Ben-David B, Levin H, Tarhi D.An unusual explanation for a failed spinal. Can J Anaesth 1995; 45: 448–9
7. Bier A. VersucheueberCocainiserung des Rueckenmarkes.Dtsche Z Chir 1899; 51: 361–9
8.Calthorpe N. Inadequate spinal anaesthesia with 0.5% Marcaine Heavy (batch DK 2016).Int J ObstetAnaesth 2004; 13: 131
9. Carpenter RL, Hogan QH, Liu SS, Crane B, Moore J. Lumbosacral cerebrospinal fluid volume is the primary determinant of sensory block extent and duration during spinal anesthesia. Anesthesiology 1998; 89: 24–9
10. Charlton JE.Managing the block. In: Wildsmith JAW, Armitage EN, McClure JH, eds. Principles and Practice of Regional
Anaesthesia, 3rd Edn. Edinburgh: Churchill Livingstone, 2003
11 .Collier CB. Accidental subdural injection during attempted lumbar epidural block may present as a failed or inadequate block: radiological evidence. RegAnesth Pain Med 2004; 29: 45–51
12 .Crone W. Failed spinal anesthesia with the Sprotte needle. Anesthesiology 1991; 75: 717–8
13 .Deshpande S, Idriz R. Repeat dose after an inadequate spinal block.Anaesthesia 1996; 51: 892
14 .Drasner K, Rigler ML. Repeat injection after a 'failed spinal': at times, a potentially unsafe practice. Anesthesiology 1991; 75: 713–4
15 .Gershon RY. Local anesthesia for cesarian section with a subdural catheter. Can J Anaesth 1996; 43: 1068–71
16 .Harris RW, McDonald P. Inadequate spinal anaesthesia with 0.5% Marcaine Heavy (batch DK-1961).Int J ObstetAnaesth 2004; 13: 130–1
17 .Harten JM, Boyne I, Hannah P, Varveris D, Brown A. Effects of height and weight adjusted dose of local anaesthetic for spinal anaesthesia for elective Caesarean section. Anaesthesia 2005; 60: 348–53
18 .kuda H, Saitoh K, Inoue S, Mitsuhata H, Shimizu R. Failed spinal anaesthesia: cause identified by MRI. Can J Anaesth symptom associated with a repeated injection after failed spinal anesthesia. Anesthesiology 1998; 89: 1294–5 1

Efficacy of Balchaturbhadra Yog" in the Management of Childhood Diarrhoea

***Amit kumar K. Sonawane.**Upadhyay P S**

***Abstract*:** Diarrhoeal disease remains an important cause of death and mobidity in developing countries. Human *rotavirus* is most common important etiological agent of acquired diarrhoea in infants and children worldwide[1]. Rotaviral diarrhoea in children is common in winter and between age group of 1 month to 4 years. In developing countries bacterial agents appear to be an important cause of acute diarrhoea[2] .Atisar has dealt in much detail in Ayurvedicliterature,but not in terms of children specially. However certain specific disorders like Ksheeralsak,GrahaRog in which diarrhoea is the major symptom reported.

***Keywords: Atisar** , Antibacterial, antispasmodic , electrolyte, Rotavirus ,fluid therapy*

Objects : The main objective is to know the efficacy of Balchaturbhadrayog in management of Atisar in children as per the Ayuvedic literature and the modern science.

Etiology : Non-infective causes - Improper feeding of infants, bottle feeding , use of commercial milk products , heavy diet , oily food , fast foods , snacks , indigestion , lactose intolerance.Infective causes– Graharog ,Bacterial- *E.coli , Vibrio cholera, salmonella, C.jejuni , shigella , yersiniaenterocolitica.* Viral- *Rotavirus* Protozoal- *E.* histolyticaHelminthic -Giardia lamblia , ascarislumbricoids

Description : Atisar : An increased in frequency and quantity of loose stools is known as Atisar[3].

Types: 1. VatajAtisar – Due to imbalance of vatadosha. 2 PittajAtisar – Due to imbalance of pitta dosha. 3. KaphajAtisar - Due to imbalance of kaphadosha. 4. SannipatajAtisar - Due to imbalance of tridosha. 5. Shokaj and BhayajAtisar – Due to emotional disturbances. 6. Aamatisar – Due to enterotoxins.

Diarrhoea : It is composed of two words :Dia = 'through' and Rhein = 'to flow'.

Diarrhoea is defined as having three or more loose stools per day or having more stools than normal for that person[4].

***J.R II ** Assistant Professor Dept of Kaumarbhritya/Balroga , IMS , BHU, Varanasi**

Types:

1. **Acute diarrhoea:**Acute diarrhoea is defined as an abnormally frequent discharge of semisolid or fluid faecal matter from the bowel, lasting no longer than 14 days.

Chronic/recurrent diarrhoea : The term "Chronic" is used when the diarrhoea is prolonged. It is usually defined as diarrhoea continuing after onset beyond 10 to 14 days, but not requiring additional fluids to maintain hydration**.**

Persistent diarrhoea (P.D.) : Duration of diarrhoea has been arbitrarily fixed at 15 days[5]. (. It is presumed that all persistent diarrhoea may be associated with infections, otherclassification based on mechanism[8]like Osmotic, Secretary,Exudative and Motility disorder.

Pharmacological propertyof balchaturbhadrayog havingkarkatshrungi, musta,pippali, ativisha :

1.Musta*(Cyperusrotundus*): Rasa-tikta ,kashay, *Virya*- sheet, Vipak-katu, Guna-sangrahi, Karma-Atisar, aruchi, trishna and dahanashak, Pittajajwar,(Ra.Ni.Pippalyadi Varga,143)[6].JwarNashak, Deepan, PachanGrahiKrimighna(B.P.N,Karpuradi Varga, 93-94)[7].Analgesic, antibacterial, anti spasmodic, antitussive & aromatic. (Singh and Kachroo, 1976,Lassak and mc Carthy, 1978,Yeung 1985,Bown, 1995)[8]

2. **Pippali(*Piper longum*):**Rasa-Katu, Virya-Anushna sheet, Vipak- madhur. *Guna*-laghusnigdha, Karma-Amatisar (C. Chi 19/20)[9], Deepaniya,Pachaniya (C.Su-25). Have anti Amoebic activity against Entamoebahistolytica in vitro and in vivo. (Ghosal. S, Lakshmi. V. -1996)[14]. Antibacterial against S.typhi and E.coli.(Intenatonal Journal of Pharmaceutical Sciences Review And Research, Nov 2010.)[10]

3.**Ativisha(*Aconitum heterophyllum*):**Rasa-tikta, Virya-Ushna, Vipak-Katu, Guna-Laghu(Kai-Nig. OsadhiVarga 1120-1121)[11], SarvaDosha Hara(C. Su. 25),Karma-Jwar and AtisarNasak in sishu(B.P. Balarogadhikara –71-151). It is used in diarrhea in protozoal infection as giardiasis and amoebiasis(The Indian Journal of Pharmacological Society, Indian Journal Of Pharmacology, Jan-Feb 2014)[12]

4. **Karkatshrungi(*Pistaceaintegerrima*):** Rasa- tiktakashay, Virya- Ushna, Vipak-Katu,Guna-laghuruksha, Karma-Hikka, AtisaraKasa,Swas (Raj. Ni.Pippalyadivarga 157).
It shows antibacterial and Anti Protozoal activities (Chopra et al., 2006)[13].

Investigative approach:*stool microscopy, stool culture, Ph.of stool, ova, cyst, reducingsubstance, occult blood, RFT, serum electrolyte.*

Principles of treatment (Chikitsasiddhant) :1. Look for Amavstha or pakwavastha. If amavasthathen give dipan -pachanchikitsa e. g. *Anathumsowa(ajwayan)* and don't try to stop the stools by stambhan early. In pakwavastha givestambhanchikitsa e.g. kutaj , unripenbilwafruitemajja .

2. If no signs of dehydration then no need of extra fluid, but there is provision of normal daily fluid requirement.

3. *Oral rehydration therapy:* Since 2004, based on the WHO/UNICEF and IAP recommendations, the government of India has adopted the low osmolality ORS to be used for all ages and all types of diarrhoea.

4. *Medication*: In bacterial and protozoa infections the antimicrobial drugs should be given like metronidazole and antibiotic. In helminthic infestations anti helminthic drugs should be used like albendazole,mebendazole, also antispasmodic and antimotility drugs should be used like dicyclomine hydrochloride. The probiotic and prebiotic supplementation will be helpful in diarrhoea.

5. ***Balchaturbhadrayog*** with Honey twice in a day is very much effective in reducing the frequency of stool, acting as sangrahi,agnidipak,pachak and also helps in digestion**(B.R.)[14].**

6. Ksheerapawastha- exclusive breast feeding with proper burping should be given and intermittently the sips of ORS solution can also be given.

Ksheerannadawastha- breast feed and*mand,peya,,khichadi ,daliya, upma*and light soft diet with medication and fluid therapy.

Annadawastha- liquid soft diet and and*mand, peya, ,khichadi ,daliya, upma*and also regular diet with proper fluid consumption and medication as described earlier.

7. Diet :

Congenial diet : *mand,peya,,daliya ,khichadi,liquid soft diet,banana,apple,luffavegetable,watermillon etc.*

Non congenial diet : chips ,kurkure,colddrinks,katahal,potato,mango,chocklets,commercial milk products, Junk food and other bakery items.

Preventive measures:1.Stop bottle feeding.2. Avoid use of commercial milk products.3. Use boiled water for drinking.4. Wash and clean the hands with soap water before handling the baby.5. Change the nappy regularly.6. Do not stop feeding during diarrhoeal episodes.

Conclusion: Diarrheal disease rank among the "three giant killers" of infants and children. Infectious diarrhoea is considered second most common cause of morbidity and mortality worldwide (WHO. 1996). The indiscriminate use of commercial antimicrobial drugs causing emergence of bacterial resistance day by day. Thus this study helps to suggest the more suitable and effective alternative like ***BalchaturbhadraYog***to these commercial antimicrobial drugs.

References:

1. Chang HG ,Smith PF, US National Library of Medicine, National Institute of Health, 2000.2 Mehta Di, Labenthal E. ,Ammerican Board of Pediatric, Pediatric Gastroenterology, 1994. 3. Madhava-Nidanam with the 'Madhukosa' Sanskrit commentary by Srivijayaraksita, Part-I (1999) & II (2003), Chaukhambha Sanskrit Sansthan, Varanasi (India).

4. World Health Organisation,Definition of diarrhoea, Geneva, Switzerland, 2014.

5. World Health Organisation,Persistant diarrhoea, Geneva, Switzerland,2006.

6. Raj Nighantu with DravyaGuna Prakasika Hindi Commentary by Dr. IndraDev Tripathi, Krishnadas Ayurved Series,1998.

7. Bhavaprakasa 'Vidyotini' Hindi commentary by Sri Brahma Sankara Misra, Part-II, Chaukhambha Sanskrit Sansthan, Varanasi (India), 2000.

8. Singh and Kachroo, 1976,Lassak and mc Carthy, 1978,Yeung 1985,Bown, 1995.

9. Charaka Samhita with the Ayurveda Dipika commendatory of Cakrapanidatta, Edited by Viadya Yadavaji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi 1992.

10. S Ghosal, B N Prasad, V Lakshmi, Division of Microbiology, Central Drug Research Institute ,Lucknow, India, Journal of Ethnopharmacology, 1996.

11.Kaiyadeva-Nighantuh, Edited and translated by Prof. Priya Vrata Sharma and Dr. Guru Prasad Sharma, Chaukhamba Orientalia, Varanasi and Delhi,2000.

12 The Indian Journal of Pharmacological Society, Indian Journal Of Pharmacology, Jan-Feb 2014.

13. Chopras Indigenous Drugs of India, Chopra R N, I.C. Chopra, Academic Publisher, 2006.

14. BhaisajyaRatnavali,Balrogadhikar, 'Vidyotini' Hindi commentary by Shri Ambikadatta Shastri, Chaukhambha Sanskrit Sansthan, Varanasi-221001 (India), 2005.

Utility Of Gurvadi Guna In Chikitsa A Bird's-Eye View

*** Dr. Murlidhar Paliwal **. Prof. K.N. Dwivedi**

ABSTRACT: The term 'Chikitsa' means to alleviate the pain or to cure the diseases i.e. treatment. Such of the actions as bringing about equilibrium of Dhatus, constitute the treatment of diseases. Chikitsit, vyadhihar, pathya, sadhan, ausadh, prayashchitt, prashaman, Prakritisthapan and hita are the synonyms of bheshaj or chikitsa. This bheshaj (treatment) is mainly of two types, viz. Svasthasya-urjaskar (preventive and promotive of health) and Artasya roganut (curative of diseases).Treatment or therapy is of three types viz. Daivavyapashraya (divine therapy), Yuktivyapashraya (therapy based on reasoning or physical properties) and Sattvavajaya (psychic therapy).Depending upon the nature of their composition, the treatment is of two types, viz. those having material substrata and those without having any material substrata. Treatment is advised considering the status of Dosha, Dushya, Bala, Kala, Prakriti, Satmya, Agni, Vaya, different stages of disease etc. of the individual as well as Rasa, Guna, Virya, Vipak, Prabhav of both the diet and medicines. The Chikitsa or treatment of any disease includes the rational use of medicine, diet and life style. All these three entities are discussed in terms of Gurvadi guna in Ayurveda. These Gurvadi guna are twenty in number as per Charak-Samhita viz. guru, laghu, shita, ushna, snigdha, ruksha, manda, tikshna, sthira, sara, mridu, kathina, vishad, picchila, shlakshna, khara, sukshma, sthul, sandra and drava. In Yuktivyapashraya Chikitsa Gurvadi guna are considered significantly. Gurvadi guna are thoroughly discussed in Dravyabhut Chikitsa and up to some extent in Adravyabhut Chikitsa. Since Gurvadi guna are discussed in the context of each and every medicine and dietary substance, it is too vast topic to discuss. Therefore this research paper deals with discussion of the fundamentals of treatment only in the light of the concept of Gurvadi guna. The concept is being discussed in relation to Rasa, Vipak, Virya, Panchamahabhut, Samanya chikitsa siddhant, Dosha- dhatu- Mala prashaman, Agni-chikitsa, Koshthanusar-chikitsa, Prakrityanusar- chikitsa, Satmyanusar-chikitsa, Vayanusar-chikitsa, Balanusar-chikitsa, Shadupakrama, Panchkarma, Svasthasya-svasthya rakshanam chikitsa and Artasya-roganut chikitsa especially mentioned in Charak-Samhita.

KEYWORDS: Ayurveda, Charak- Samhita, Chikitsa, Gurvadi guna.

INTRODUCTION: Ayurveda is the science of life in general and specifically holistic system of medicine which advocates Chikitsa according to everlasting fundamental principles. In the context of mode of action of Dravya (substance), it is stated in Ayurveda that some substances act by their Rasa (taste), some by their Virya (potency), some other by their Guna (attributes), some others by their Vipak and still others by their Prabhav (specific effect). In case the Rasa, Vipak, Virya and Prabhava are of equal strength, by nature, rasa is super ceded by Vipak, both of them in turn are super ceded by Virya and Prabhav overcomes to Rasa, Vipak and Virya[1]. Out of all the concepts, the concept of Guna is of greater significance. Gurvadi guna is one group out of different groups of gunas which is discussed very vividly in Ayurveda. These Gurvadi guna are twenty in number as per Charak-Samhita viz. Guru, laghu, shita, ushna, snigdha, ruksha, manda, tikshna, sthira, sara, mridu, kathina, vishad, picchila, shlakshna, khara, sukshma, sthul, sandra and drava. Acarya Charak has discussed Gurvadi guna at three places in his text which reveals the gravity of the concept. In the first chapter of Sutrasthan of Charak-Samhita in the context of properties of both the diet and medicines, then in twenty fifth chapter of Sutrasthan in the context of classification of diet and finally in the sixth chapter of Sharirsthan in the context of Sharirdhatu-guna and all these references justify the utility of this very concept in the context of diet, medicines as well as in the properties of body tissues. After observing this fact, we can say that it is useful in fulfillment of both the aims and objects of Ayurveda i.e.

prevention of health and cure of different diseases. Application of diet and medicine is done considering its Rasa, Guna, Vipak, Virya, Prabhav as well as Prakriti, Dosha, Dushya, Satmya, Koshtha, Agni, Bala, Vaya etc. of the patient and all these things are discussed in relation to Gurvadi guna. Therefore fundamentally the concept is being discussed here in relation to Rasa-based chikitsa, Vipak-based chikitsa, Virya-based chikitsa, Prakriti-based chikitsa, Doshanusar-chikitsa, Dushyanusar-chikitsa, Satmyanusar-chikitsa, Koshthanusar-chikitsa, Agnyanusar-chikitsa, Vayanusar-chikitsa, Balanusar-chikitsa, Panchmahabhut-based chikitsa, Shadupakrama and Panchkarma.

Rasa-based chikitsa and Gurvadi guna: The term 'rasa' means the object of gustatory sense organ and it is of six types i.e. Madhur (sweet), amla (sour), lavana (saline or salty), katu (pungent), tikta (bitter) and kashay (astringent). Rasa (taste) based chikitsa is discussed in the classics such as Madhur, amla and lavana rasa alleviate Vata Dosha and katu, tikta and kashay rasa aggravate it, Madhur, tikta and kashay Rasas alleviate Pitta-Dosha and katu, amla and lavana rasa aggravate it, katu, tikta and kashay rasa alleviate Kapha-Dosha and Madhur, amla and lavana rasa aggravate the Kapha- Dosha[2].These Rasas are discussed in terms of Gurvadi guna which is essentially considered in clinical practice. Because on the basis of Gurvadi guna present in particular Rasa; one can explain the efficacy of Rasas such as Vatashamak Rasas are generally snigdha, guru, ushna, Pittashamak Rasas are shita, snigdha and guru and Kaphashamak Rasas are laghu, ruksha and ushna. Looking towards the significance of the concept, Acharya Charak has elaborately discussed the relative superiority or inferiority of tastes of drugs based on certain Gurvadi guna. It is as follows:-

Property	Superior	Moderate	Inferior
Rukshata (dryness)	Kashay rasa	Katu rasa	Tikta rasa
Ushnata (hotness)	Lavana rasa	Amla rasa	Katu rasa
Snigdhata(unctuousness)	Madhur rasa	Amla rasa	Lavana rasa
Shitata (coldness)	Madhur rasa	Kashay rasa	Tikta rasa
Guruta (heaviness)	Madhur rasa	Kashay rasa	Lavana rasa
Laghuta (lightness)	Tikta rasa	Katu rasa	Amla rasa

Some authors are of the view that among light drugs and diets, those having lavana rasa (saline taste) are inferior. Thus drugs and diet having saline taste are inferior both in guruta (heaviness) and laghuta (lightness)[3]. Acharya Vriddha Vagbhata mentions the guru etc. guna of Madhuradi Rasas similar to Acharya Charak but in addition to that he has quoted mridu guna in Madhur rasa, tikshna guna in katu rasa in Rasabhediya-Adhyaya of Sutrasthan of Ashtanga Samgraha. As per Sushruta Samhita, Some scholars are of the opinion that- because of igneous-watery nature of the universe, Rasas are divided into two groups-saumya (watery) and agneya (igneous); sweet, bitter and astringent Rasas come into former group while pungent, sour and salty come in the latter one. Out of them, sweet, sour and salty are snigdha (unctuous) and guru (heavy); pungent, bitter and astringent are ruksha (rough) and laghu (light); watery Rasas are shita (cold) where as igneous ones are ushna (hot)[4]. Owing to their unctuousness, drugs and diets having sweet, sour and saline tastes are useful for the elimination of flatus, urine and stool. On the other hand, drugs and diets having pungent, bitter and astringent tastes create difficulty in the elimination of flatus, stool, urine and semen in view of their drying property. Here role of Rasas in evacuation is discussed on the base of Gurvadi guna[5].

Vipak-based chikitsa and Gurvadi guna: Substances which are used either as food or medicines, after undergoing digestion in the alimentary tract, become converted into such substances having only one of the three tastes- sweet, sour or pungent. This process of transformation is known as Vipak. It is known by the actions in the form of mitigation or aggravation of Vatadi-Doshas [6]. It is of three types viz. Madhur-Vipak, Amla-Vipak and Katu-Vipak[7].Diets and drugs act because of their Vipak also such as Madhu (honey) though Madhur rasa (sweet taste) mitigates Kapha by its Katu- Vipak. Sesamum oil causes obstruction of faeces and urine mainly by being Katu-Vipak. Saindhava salt mitigates Pitta by its Madhur-Vipak. Shunthi (Zinziber officinale Roxb.) and Pippali (Piper longum Linn.) are katu rasa yet are Vatashamak due to their unctuousness, hot potency and Madhur-Vipak. Amalak (Emblica officinalis Gaertn.) is amla rasa yet is Pittashamak due to Madhur-Vipak and shita virya[8].Takra is amla-kashay rasa yet is Pittashamak due to Madhur- Vipak[9]. Therefore Vipak of diets and drugs is also considerable in clinical practice as it exerts its effect on Dosha, Dhatu and Mala of the body as well as on diseases. Diet and drugs having Amla-Vipak should not be prescribed in Amlapitta and other diseases due to increased pitta, of Katu-Vipak should not be prescribed in diseases due to increased Vata and of Madhur-Vipak should not be advised in diseases arisen due to increased Kapha, Mamsa and Medas. This very concept of Vipak is also discussed in terms of Gurvadi guna such as Madhur-Vipak is guru (heavy) where as Amla and Katu-Vipak is laghu (light)[10].

Virya-based chikitsa and Gurvadi guna: The term 'Virya' (potency) represents that aspect of drugs and diets by virtue of which they manifest their actions on human body. There cannot be any action without potency; all actions are because of potency[11].The Virya of drugs and diets can be determined while in association with the body and or even immediately after coming into contact with the body[12].According to some scholars, Virya of various drugs and diets is of eight types i.e. Mridu (mild), tikshna (sharp), guru (heavy), laghu (light), snigdha (unctuous), ruksha (ununctuous), ushna (hot) and shita (cold). Some others hold the view that it is only of two types viz. Shita and ushna[13]. Acharya Sushruta has also discussed two types of Virya i.e. Ushna (hot) and shita (cold) as universe is composed of Agni (fire) and Soma (water). Further he has mentioned eight types of Virya i.e. Shita, ushna, snigdha, ruksha, vishada, picchila, mridu and tikshna according to the view of other scholars[14]. Here important thing is to note that nomenclature of the different types of Virya is related to Gurvadi guna and it is well accepted by all the scholars of Ayurveda that drugs or diets act because of its Virya. Acharya Sushruta says that these Viryas exert their actions by subduing rasa with eminence of their innate power or property; such as Mahat-panchamula, though astringent in taste followed by bitter, pacifies Vata-Dosha due to ushna Virya; similarly Kulattha (Dolichos biflorus Linn.) and Palandu (Allium cepa Linn.), though being astringent and pungent respectively, pacify Vata Dosha also due to snigdha Virya; sugarcane juice though sweet in taste ,increases Vata due to shita Virya; pungent Pippali pacifies pitta due to mridu and shita Virya, similarly do sour Amalaka and rock salt; Kakamachi (Solanum nigrum Linn.), though bitter, increases pitta due to ushna Virya and also fish which are sweet; pungent Mulaka (Raphanus sativus Linn.) increases Kapha due to snigdha Virya; sour Kapittha (Feronia limonia (Linn.) Swingle) pacifies kapha due to ruksha Virya and also honey in the same way. These are some of the examples[15].Acharya Vriddha Vagbhat has discussed about the cause behind mentioning eight Gurvadi guna as ashtavidha-Virya. He says that guru and other powerful qualities are designated as Viryas where as those which are weak are simply known as gunas (qualities) only[16].So when we discuss the efficacy of drugs or diets on the basis of Virya, it is directly related to Gurvadi guna.

Panchmahabhuta based chikitsa and Gurvadi guna: According to Ayurveda, all matter is constituted of five Mahabhutas i.e. Akash, Vayu, Agni, Jala and Prithvi; some of them are animate and some others are inanimate. Their attributes are shabda (sound), sparsha (touch), rupa (vision), rasa (taste) and gandha (smell) and also the twenty attributes beginning with guru and ending with drava (liquid) etc..They are useful for emesis, purgation, Niruh, Anuvasan and inhalation therapies. Chakrapanidatta, the commentator of Charak-Samhita, says that emesis etc. are mentioned on the basis of supremacy of purification measures comparatively, otherwise both the animate and inanimate matter perform the brimhana, langhana etc. actions also[17]. The above mentioned quotation justifies that every substance is Panchabhautika, possesses Gurvadi guna and is useful in both the Shodhana and Shamana chikitsa. Ayurveda chikitsa is based on Panchmahabhut theory and these are discussed in terms of Gurvadi guna such as- Prithvi and Jala Mahabhuta is guru where as Agni, Vayu and Akasha Mahabhuta are laghu. So the patients suffering from Vatavriddhi, Dhatukshaya or Malakshaya are generally treated with drugs and diets which are dominated by Prithvi and Jala Mahabhut. On the other hand patients suffering from Kaphavriddhi, Mamsavriddhi, Medovriddhi are treated with drugs and diets which are dominated by Agni, Vayu and Akasha Mahabhut. Atyagni is treated with the drugs and diets which are dominated by Prithvi and Jala Mahabhut where as mandagni is treated by the drugs and diets which are dominated by Agni, Vayu and Akasha Mahabhut.

Samanya chikitsa-siddhant and Gurvadi guna

Diseases are defined as those which on conjunction cause pain in the body[18]. Diseases are mainly of two types on the basis of location i.e. physical and mental. Again it is of two types on the basis of prognosis i.e. curable and incurable. Ayurveda advocates about the treatment of curable diseases. The causative factors are many in numbers responsible for the manifestation of diseases. Treatment depends upon the causes and severity of the disease. Ayurveda advocates about samanya chikitsa-siddhanta (general principles of treatment) which are applicable in all the diseases i.e. Nidana parivarjan (avoidance of causative factors), Samshaman (alleviation therapy) and Samshodhan (elimination therapy or biopurification therapy)[19].

The primary approach to treat any diseases is to avoid its aetiological factors[20] such as guru, snigdha, shita diet in Jvara (fever), ushna, tikshna diets in Raktapitta, guru, snigdha in Prameha, guru, snigdha and atidrava in Atisara, shita in Pratishyaya and Shwas, guru, shita, snigdha, picchila in Amadosh should be avoided.

The second approach to treat any disease is Shaman-chikitsa (alleviation therapy) means factors responsible for production of disease should be counter-acted by viparit or viparitarthakari treatment. This viparit or viparitarthakari treatment is done considering the Gurvadi guna and other factors also. It is well versed that enlightened physicians administer cold things to cure diseases caused by hot things. For diseases caused by cold things, hot drugs are useful[21]. As per Acharya Charak the curable diseases are cured by medicines possessing opposite qualities, when administered with due regard to the place, dose and time[22].

The third and ultimate approach to treat the disease is Samshodhan-chikitsa if patient is having good strength of body, his disease is due to bahudosh (vitiated Doshas in excess) and suitable for Shodhan. Shodhan drugs generally possess ushna, tikshna, sukshma, vyavayi, vikasi etc. guna.

Dosha- Dhatu- Mala chikitsa and Gurvadi guna: The human body is composed of Dosha, Dhatu and Mala[23]. In normal state of these three entities, body is sustained but the abnormal state causes

various diseases and even death also. Dhatus and Malas are known as Dushyas (those which get vitiated). Doshas are aggravated by the improper use of diets and bodily activities which further vitiate Dhatu or Mala depending upon the specific pathogenesis. These diets and bodily activities possess or exert effect similar to certain types of Gurvadi guna. Chikitsa (treatment) is done considering Dosha, Dushya and Nidan of diseases mainly. As it is well versed in Charak-Samhita that therapies which are opposite to the properties of the Dosha, Dushya and Nidan (aetiological factors) involved in causation of the disease are certainly useful to cure it. If appropriately used, such therapeutic measures will cure all the diseases whether they are named or not in the text[24].

Dosha-pratyanika chikitsa is based on viparita guna (heterogenous qualities) having medicines and diets. As it is stated that Vata, which is ruksha, shita, laghu, sukshma, chala, vishada and khara, is reconciled by medicines having opposite qualities[25].Pitta, which is sasneha, ushna, tikshna, drava, amla, sara and katu is soon overcome by medicines having opposite qualities[26]. Qualities of Kapha, which is guru, shita, mridu, snigdha, madhur, sthir and picchila are relieved by medicines of opposite qualities[27]. Doshas, Dhatu and Mala are vitiated in two ways either by their vriddhi or kshaya. Physician has to manage these two different conditions for which the principle of Samanya and Vishesh is discussed in Charak-Samhita and other classics. Further it is stated that the habitual use of substances having homologous qualities result in the enhancement of Dhatus (Doshas and Malas)[28]. This principle can be followed in kshayavastha of Dosha, Dhatu and Mala. On the other hand, use of heterogenous qualities of aggravating factors constitute alleviation of Dhatus (Doshas and Malas)[29].This principle can be followed in vriddhi-avastha of Dosha, Dhatu and Mala where opposite quality medicines are used to establish Dhatusamya (equilibrium of body tissues). Dhatus inside the body of the individual get increased by the habitual use of food preparation which are either of samanaguna (similar attributes) or samanagunabhuyishtha (dominated by similar attributes) . Habitual use of food having viparitaguna (opposite attributes) or viparitagunabhuyishtha (having the dominance of opposite attributes) reduce the Dhatus[30].

Agni-chikitsa and Gurvadi guna: Agni means digestive fire which digests food. It is of four types i.e. Samagni, Vishamagni, Tikshnagni and Mandagni. The first one is normal digestive fire and remaining three are abnormal. Chikitsa of Agni-dushti is performed according to Dosha involved and that is according to Samanya-Vishesh siddhant in terms of Gurvadi guna mainly. Atyagni (atitikshnagni or excessive fire) should be pacified by administering guru (heavy), snigdha (unctuous), shita (cold), sweet and picchila food and drinks like fire by pouring water[31].Vishamagni (irregular Agni) should be treated with snigdha, sour and salty substances and other specific measures; in Tikshnagni (intense Agni) sweet, snigdha and shita substances as well as purgatives should be applied[32].According to Vriddha Vagbhat, in patient suffering from Mandagni initially drava (liquid) and ushna (warm) food should be taken for stimulation of digestive fire[33].

Koshthanusar-chikitsa and Gurvadi guna

Koshtha (bowel) is of three types i.e. Mridu, Krur and Madhyam. In Mridu-Koshtha, mridu guna medicine or mridu matra (small dose) of medicine, in Krur-Koshtha tikshna medicine and in Madhyam-Koshtha, madhyama type of medicine which is neither to mild nor too drastic or sharp should be administered[34]. Duration of Snehana according to Koshtha is mentioned in Ayurveda. Acharya Charak says that a person with Mridu-Koshtha is properly oleated by taking unctuous substances for three consecutive nights and one with Krur-Koshtha for seven consecutive nights[35]. Here snehana upto seven days is needed for Krur-Koshtha as there is rukshata due to dominance of Vata in the Grahani of such individuals. Different Virechan drugs considering their Gurvadi-guna are indicated according to the Koshtha of a patient [36].

Prakrityanusar-chikitsa and Gurvadi guna: The term 'Prakriti' has been used having different meanings in Ayurveda. Here in the context of chikitsa, Prakriti has been discussed in the sense of Deha- Prakriti (Physical constitution). The physical constitution of the person gets formed from the predominant Dosha or Doshas at the time of fertilization and it continues as it is whole life except arishta-avastha (stage of fatal signs and symptoms). It is of seven types i.e. Vata Prakriti, Pitta Prakriti, Kapha Prakriti, Vata-Pittaja Prakriti, Vata-Kaphaja Prakriti, Pitta-Kaphaja Prakriti and Samadoshaja Prakriti as mentioned in Charak-Samhita, Sushruta-Samhita and Ashtanga Samgraha. Prakrityanusar chikitsa depends upon the predominance of Dosha in particular Prakriti. As stated in Charak-Samhita that such of the diets and regimens, as stand in contradiction (viparit guna) with the Doshas responsible for production of the particular Prakriti are prescribed for the maintenance of positive health. For individuals having equilibrium state of Doshas, habitual intake of diets consisting of all Rasas (tastes) in proportionate quantity is advised[37].As per Vriddha Vagbhat, Prakriti have to be treated using drugs and therapies of dissimilar or opposite qualities and properties as described in Doshopakramaniya Adhyaya of Ashtanga Samgraha. In Prakriti produced by one Dosha or two Doshas, all the scholars of Ayurveda prescribed viparit guna chikitsa (treatment by opposite qualities) which is directly related to Gurvadi guna.

Satmyanusar-chikitsa and Gurvadi guna

Satmya stands for such factors as are wholesome to the individual even when continuously used[38].It is of three types, viz. superior, inferior and mediocre. Use of all the Rasas is of the superior type of satmya; use of only one rasa is of an inferior type and in between the superior and the inferior types is the mediocre type of satmya[39]. All the above mentioned types of satmya come under okasatmya (non-injurious to the body due to habitual use). Apart from okasatmya, Acharya Charak has discussed three more types of satmya i.e. Ritusatmya, Deshsatmya and Amayasatmya in Tasyashitiya Adhyaya of Charak-Samhita. Ritusatmya includes diets and regimens which are wholesome in different seasons. Ritusatmya is discussed in terms of Gurvadi guna as Vriddha Vagbhat clearly stated that Ritucharya is nothing but our reaction against shita (cold), ushna (hot) and varsha (rain). So the seasonal regimen of Hemant (early winter season) and Shishir (late winter season) is indicated the same[40].Deshasatmya and Amayasatmya is explained in terms of viparit-guna diets, drugs and regimens of particular habitat and disease. The experts in the subject advise habitual use of such diets (including drugs) and regimen having opposite qualities of the habitat of the individuals and the disease they are suffering from[41]. If a place is excessively cool, the body would constantly need some additional extraneous heat to maintain itself against the excessive cold of the place. Arid lands are by nature dominated by the qualities of rukshata (dryness). Individuals residing there would naturally require the diets which are dominated by the qualities of snigdhata (unctuousness). Amayasatmya refers to diets, drugs and regimens which are wholesome in particular disease. such as laghu, ruksha, ushna diet and drugs in Amadosha and Kaphaja disorders , shita diets and regimens in Raktapitta, guru and atarpaṇa diet in obesity, laghu and santarpaṇa in excessive emaciation, ushna and vatanuloman diet and medicine in Hikka and Shwasa roga are few of the examples of Amayasatmya.

Vayanusar chikitsa and Gurvadi guna: The term 'Vaya' represents the state of person's body depending upon the length of the time that has passed since birth. Age is broadly of three types, viz. young age, middle age and old age[42].Diet and medicines are to be used after proper consideration of Gurvadi guna beneficial in different stages of age according to Dosha and requirement of the body. As it is stated that child should be preferably treated with Mridu-bheshaj (mild drugs)[43]. Snehana karma (oleation therapy) is prescribed for the old aged persons and children[44]. Excessively snigdha, ruksha,

ushna and guru drugs and foods are contra-indicated for children[45].If virecana is required in children and old persons, it should be administered with Rajavriksha (Cassia fistula Linn.) which is mridu (mild), sweet and shita (cold)[46].The dose of Niruh-basti (non-unctuous enema) is described in Prasrit measurement. This basti should be particularly mridu (mild) in cases of children and old people[47].If a child is suffering from antarmukha or bahirmukha bhagandara (fistula in ano) , he is not suitable for Virechan (purgation), Agnikarma (cauterization), shastrakarma (surgery) and ksharkarma (caustic alkali). However he should be treated with natimridu and natitikshna procedures[48].

Balanusar- chikitsa and Gurvadi guna: The term 'Bala' means strength of the body and it is assessed by the capacity for exercise. Here both the physical and mental strength of the patient should be assessed as it helps in cure of disease. As it is quoted that strength is necessary to overcome the diseases[49]. Balanusar chikitsa depends on both the rogibala (strength of patient) and rogabala (severity of disease). As it is stated in Charak-Samhita that medium and mild (mridu) drugs are defective for strong persons as they do not eliminate the entire impurity. However, they are to be used in cases of patients having medium and inferior strength with a view to achieving success. The disease is also (grouped as) tikshna (severe), medium and mridu (mild) when it has all, medium and a few symptoms respectively. The physician considering the severity should administer tikshna (drastic), medium and mridu (mild) drugs respectively in these conditions[50].

Shadupakrama and Gurvadi guna: The term 'upakrama' means the principles of treatment. The chikitsa of all the diseases depends upon the principles of treatment. Diseases are innumerable and their treatment is of many types depending on the particular cause and condition. All the treatment procedures are classified in Shadupakrama (six types of therapies) which are applicable in different diseases considering the requirement of patient. These Shadupakrama are langhan (lightening therapy), brimhaṇ (nourishing therapy), ṛukshan (drying therapy), snehana (oleation therapy), swedan (fomentation therapy) and stambhan (astringent therapy). These Shadupakramas are discussed and defined on the base of Gurvadi guna which shows the significance of the concept of Gurvadi guna. The following are characteristic features of the drugs and diets that are mostly employed in Shadupakramas[51]-

S. No.	Upakrama (Therapy)	Characteristic features of the diets and drugs mostly administered
1.	Langhan (lightening Therapy)	Laghu, ushna, tikshna, vishad, ruksha, sukshma, khara, sara and kathina.
2.	Brimhan (nourishing therapy)	Guru, shita, mridu, snigdha, sthula, picchila, manda, sthira and shlakshna
3.	Rukshan (drying therapy)	Ruksha, laghu, khara, tikshna, ushna, sthira, apicchila and kathina
4.	Snehan (oleation therapy)	Drava, sukshma, sara, snigdha, picchila, guru, shitala, manda and mridu
5.	Swedan (fomentation therapy)	Ushna, tikshna, sara, snigdha, ruksha,sukshma, drava, sthira and guru
6.	Stambhan (astringent therapy)	Shita, manda, mridu, shlakshna, ruksha, sukshma, drava, sthira and laghu

Panchkarma and Gurvadi guna: In Charak-Samhita, Vaman, Virechan, Asthapan-basti, Anuvasan-basti and Shirovirechan are enumerated as Panchkarma which purify the body significantly. Panchkarma is advised and useful for both the healthy and diseased persons.

Panchkarma is generally administered in sadharan ritu (seasons which are neither too hot nor too cold) for proper success of the therapy[52].In emergency conditions, Panchkarma is administered as and when required but the excessive heat, cold should be counter-acted by artificial means (air-conditioning), proper medicines, dose and vehicles. Panchkarma chikitsa is followed in three steps i.e. Purvakarma, pradhankarma and pashchatkarma. In every step of Panchkarma, Gurvadi guna are considered significantly. The purvakarma i.e. Snehan and Swedan karma predominates snigdha guna and ushna guna respectively.

Mode of the action of Vaman and Virechan drugs is discussed in terms of Gurvadi guna they possess. It is stated that the ushna, tikshna, sukshma, vyavayi and vikasi drugs because of their potency reaching the heart and circulating through vessels effect the mass of impurity in the entire body, liquefy it through large and small ducts due to firy nature and disjoin it due to taikshnya (sharpness), consequently the disjoined mass floating in the snigdha body like honey in uncted vessel reaches the stomach due to penetrating nature and being propelled by Udan-vayu is thrown up because of the natural composition of the drug with Agni and Vayu Mahabhuta and specific potency for emesis. When the natural composition of the drug predominates in Jala and Prithvi and there is specific potency for purgation, it goes down. When both the above characters are combined, it moves both ways[53].Those who are oppressed with ushna should be given shita enema and those who are oppressed with shita should be given ushna enema. Thus one should administer enema in all cases distinguishing like this and adding with contrary drugs[54].The nasal therapy consisting of Shirovirechan (head evacuation) is recommended in head diseases caused by Kapha such as gurutva (heaviness)[55] etc. When head is properly evacuated laghuta in chest and head is observed and if it is deficiently evacuated then gurutva (heaviness) in head is observed[56]. After Vaman and Virechan, post dietetic regimen is indicated in the form of Peya, Vilepi etc. which are actually based on the concept of laghu diet.

Swasthasya-swasthya-rakshanam and Gurvadi guna: Swasthasya-swasthya-rakshanam means to prevent and promote the health of healthy individuals and it is the prime aim and object of Ayurveda. If we talk in terms of tools to prevent and promote the health, these are mainly three i.e. Ahar (diet), vihar (regimen) and bheshaj and these are advised considering the Gurvadi guna they possess. In the context of ahar, it is stated that if the food article is heavy, only three fourth or half of the stomach capacity is to be filled up. Even in the case of light food articles excessive is not conducive to the maintenance of the power of digestion and metabolism[57]. Acharya Vriddha Vagbhat has advised to take snigdha, laghu and ushna guna ahar (diet) for healthy individuals[58]. He has suggested that drava or shushka diet should be taken in the beginning considering the Agnibala and satmya. Generally guru and snigdha should be taken in the beginning. Ruksha and drava ahar should be taken at the end of meal[59].According to season, the diet schedule should be followed by healthy individuals considering the Gurvadi guna. The vihar (regimens) is the second important factor after ahar in prevention and promotion of health. When light clothes are to be used, when light exercise is to be performed and how to protect from climatic effects, all these regimens are mainly decided keeping in view its result in the sense of Gurvadi guna.The bheshaj which is the third mean to maintain the health is also detailed in the sense of Gurvadi guna up to certain extant.

Artasya-roganut chikitsa and Gurvadi guna: Artasya-roganut means which cures the diseases of the diseased persons. Cure or treatment is done by following different types of chikitsa i.e. Daivavyapashraya chikitsa, Yuktivyapashraya chikitsa and Sattvavajaya or dravyabhuta and adravyabhuta chikitsa or Shodhan and Shaman chikitsa. All these types of chikitsa (treatment) are more or less discussed in terms of Gurvadi-guna.

Artasya-roganut chikitsa of all the diseases is discussed basically in two ways i.e. the chikitsa-siddhant (principles of treatment) and the aushadh-vyavastha (medications). Both the chikitsa siddhant and aushadh are discussed on the basis of Gurvadi-guna such as shita ahar,vihar and aushadh in Raktapitta and burning sensation, ushna in Shwas, Kasa and Pratishyaya, snigdha in Vatavyadhi, Ruksha in Kaphaj-vyadhi are advised following general principles. Diet and Medicines which are advised for the treatment for any disease, certainly possess the gurvadi guna which are essentially considered such as Ghee, milk are shita (cold), snigdha (unctuous), green gram and goat's milk is laghu (light), black gram and buffalo milk is guru (heavy), Amaltas is mridu-Virechak (mild pugative), Sudha-kshir is tikshna-Virechak (drastic purgative), Amalak is shita and mridu, Haritaki is ushna and so on.

CONCLUSION: After thorough review of the literature and discussion, it becomes clear that Gurvadi guna are considered in every aspect of treatment either it is the matter of diet or regimen or medicines. All the therapeutic procedures can be explained in relation to Gurvadi guna. Both the Shodhan and Shaman chikitsa are administered keeping in view the Gurvadi guna. Even the definition of dravya (matter) has been given in the light of guna (attributes) and karma (actions). It is well versed in Ayurveda that only that entity can be stated as a dravya which possesses guna and karma and inseparable cause to produce similar dravya. Acharya Charak states that all the therapeutic effects are observed because of guna that's why Viparit-guna or Saman-guna chikitsa is indicated in classical text considering the requirement of particular patient.Acharya P.V. Sharma states in his book of Dravyaguna that in Dravyaguna, guna means Gurvadi guna and it is justified through the thorough study of the text where Rasa, Vipak, Virya and Panchmahabhuta are discussed in relation to Gurvadi-guna. Doshanusar-chikitsa, Dushyanusar-chikitsa, Prakrityanusar-chikitsa, Balanusar-chikitsa, Vayanusar-chikitsa, Koshthanusar-Chiktsa and Agnyanusar-Chikitsa depend upon the concept of Gurvadi-guna which shows the significance of this very concept in clinical practices.

REFERENCES:

1. Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-148 .

2. (I) Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.231

(II) Sushruta, Sushruta-Samhita, with the Nibandha-Samgraha commentary of Dalhan and Nyayachandrika Panjika of Shree Gayadas on Nidanasthan edited (from beginning to 9th chapter of Chikitsasthan) by Vaidya Yadavji Trikamji Acharya and the rest by Narayan Ram Acharya "Kavyatirtha", Chaukhambha Orientalia, Varanasi (India), seventh edition- 2002, page No.-184.

(III) Vriddha Vagbhat, Ashtanga-Samgraha with Shashilekha commentary by Indu, edited by Dr. Shivprasad Sharma, Chaukhamba Sanskrit Series Office, Varanasi (India), 2nd edition-2008, page No.-07.

3. Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-146.
4. Sushruta, Sushruta-Samhita, with the Nibandha-Samgraha commentary of Dalhan and Nyayachandrika Panjika of Shree Gayadas on Nidanasthan edited (from beginning to 9th chapter of Chikitsasthan) by Vaidya Yadavji Trikamji Acharya and the rest by Narayan Ram Acharya "Kavyatirtha", Chaukhambha Orientalia, Varanasi (India), seventh edition- 2002, page No.-184.
5. Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-146.
6. Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-148.
7. (I) Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-146.
(II) Vriddha Vagbhat, Ashtanga-Samgraha with Shashilekha commentary by Indu, edited by Dr. Shivprasad Sharma, Chaukhamba Sanskrit Series Office, Varanasi (India), 2nd edition-2008, page No.-07.
8. Vriddha Vagbhat, Ashtanga-Samgraha with Shashilekha commentary by Indu, edited by Dr. Shivprasad Sharma, Chaukhamba Sanskrit Series Office, Varanasi (India), 2nd edition-2008, page No.-139.
9. Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-520.
10. Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-146.
11. Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-147.
12. Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-148.
13. Agnivesh, Charak-Samhita, with the Ayurveda-Dipika commentary by Chakrapanidatta and edited by Vaidya Yadavji Trikamji Acharya, Chaukhamba Surbharati Prakashan, Varanasi (India), reprint edition-2000, Page No.-147.
14. Sushruta, Sushruta-Samhita, with the Nibandha-Samgraha commentary of Dalhan and Nyayachandrika Panjika of Shree Gayadas on Nidanasthan edited (from beginning to 9th chapter of Chikitsasthan) by Vaidya Yadavji Trikamji Acharya and the rest by Narayan Ram Acharya "Kavyatirtha", Chaukhambha Orientalia, Varanasi (India), seventh edition- 2002, Page No.-175-176.
15. Sushruta, Sushruta-Samhita, with the Nibandha-Samgraha commentary of Dalhan and Nyayachandrika Panjika of Shree Gayadas on Nidanasthan edited (from beginning to 9th chapter of Chikitsasthan) by Vaidya Yadavji Trikamji Acharya and the rest by Narayan Ram Acharya "Kavyatirtha", Chaukhambha Orientalia, Varanasi (India), seventh edition- 2002, Page No.-176.

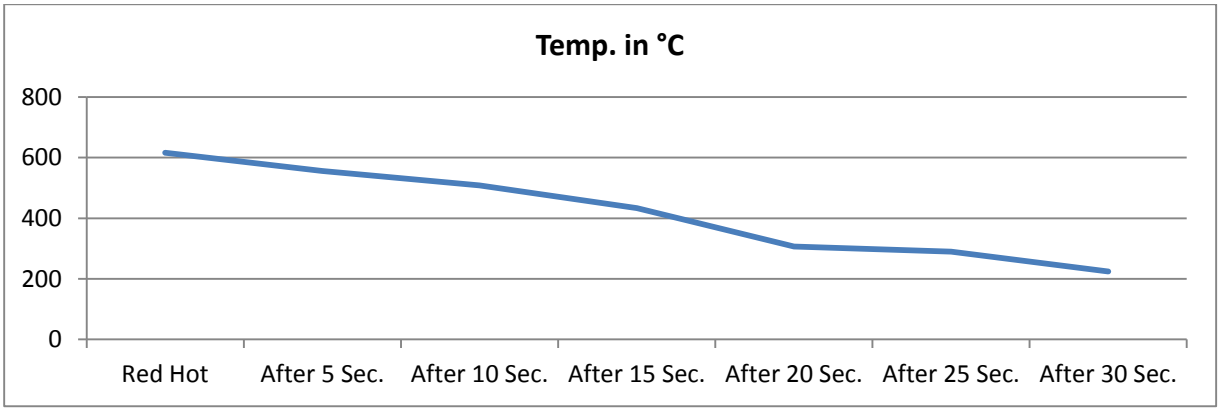
Instrument and theory implemented for Standardization of Agani karma Shalaka

***Dr P.K.Bharti **Prof. D.N.Pande.**

In continuation to our previous Research paper "**Standardization of Agni Karma Shalaka**" published in Sangyaharan Shodh, February – 2014, Volume 17, Number 1,page no.48 onward-

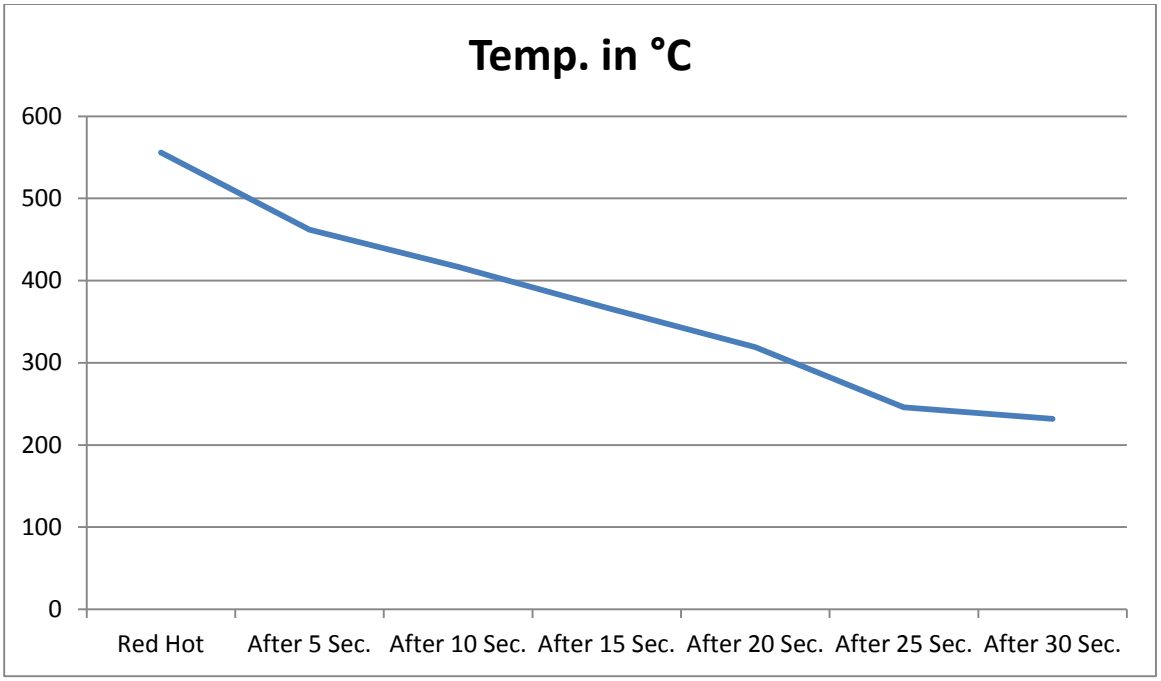
Red Hot temp. of swarna shalaka and loss of heat/temperature within 30 sec's.

	Red Hot	After 5 sec.	After 10th sec.	After 15th sec.	After 20th sec.	After 25th sec.	After 30th sec.
mV	25.6	23	21	17.8	15	11.8	9.1
°C	616°C	556°C	508°C	433°C	307°C	290°C	224°C
%Decrease	616°C/100%	9%	17%	29%	50%	52%	62%



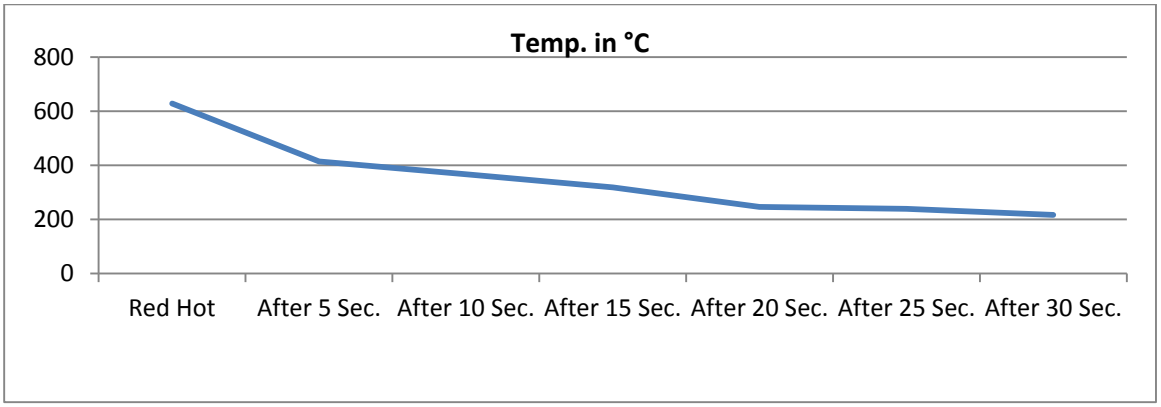
Red Hot temp. of Panchadhatu shalaka and loss of heat/temperature within 30 sec's. :

	Red Hot	After 5 sec.	After 10th sec.	After 15th sec.	After 20th sec.	After 25th sec.	After 30th sec.
mV	23	19	17.2	15	13	10	9.4
°C	556°C	462°C	417°C	367°C	319°C	246°C	232°C
%Decrease	556°C/100%	16%	25%	33%	42%	55%	58%



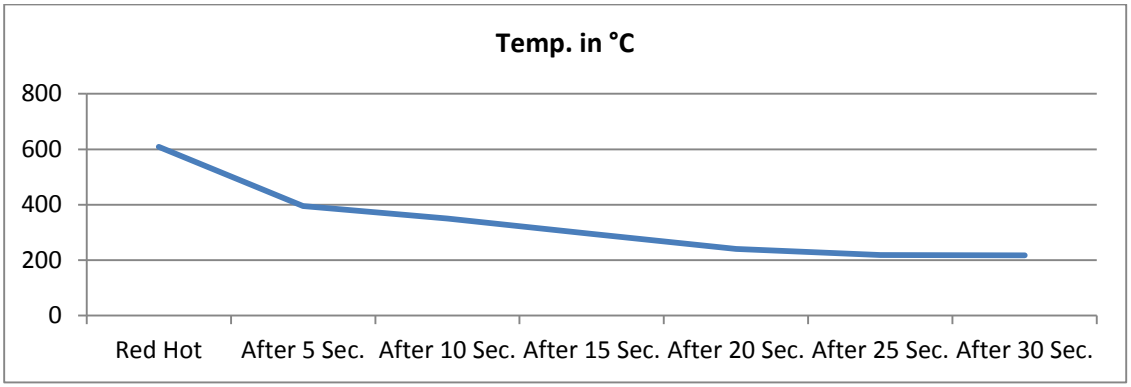
Red Hot temp. of Lauh shalaka and loss of heat/temperature within 30 sec's.:-

	Red Hot	After 5 sec.	After 10th sec.	After 15th sec.	After 20th sec.	After 25th sec.	After 30th sec.
mV	26.1	17	15	13	10	9.7	8.8
°C	628°C	414°C	367°C	319°C	246°C	239°C	217°C
%Decrease	628°C/100%	34%	41%	49%	60%	62%	65%



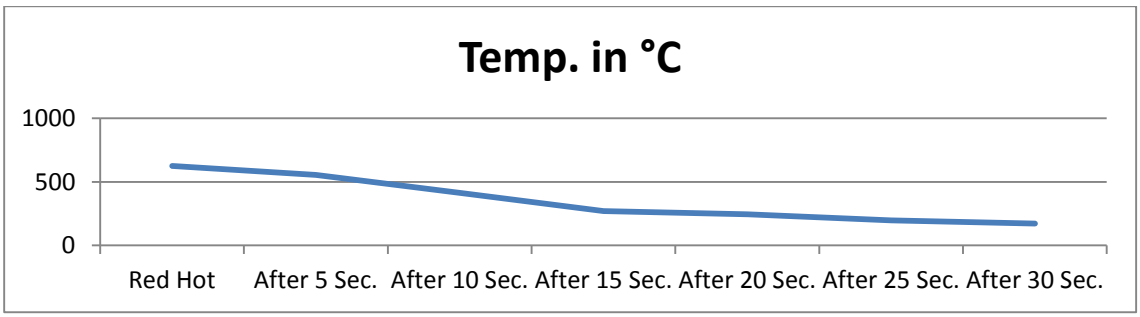
Red Hot temp. of Tamra shalaka and loss of heat/temperature within 30 sec's. :

	Red Hot	After 5 sec.	After 10th sec.	After 15th sec.	After 20th sec.	After 25th sec.	After 30th sec.
mV	25.3	16.2	14.3	12	9.8	8.9	7.8
°C	609°C	395°C	350°C	295°C	241°C	219°C	192°C
%Decrease	609°C/100%	35%	42%	51%	60%	64%	68%



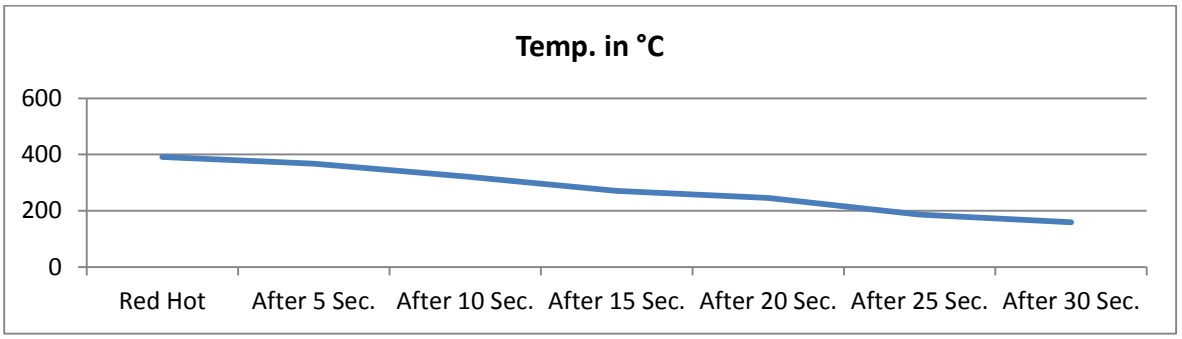
Red Hot temp. of Rajat shalaka and loss of heat/temperature within 30 sec's.:

	Red Hot	After 5 sec.	After 10th sec.	After 15th sec.	After 20th sec.	After 25th sec.	After 30th sec.
mV	26	23	17	11	10	8	7
°C	626°C	556°C	414°C	271°C	246°C	197°C	172°C
%Decrease	626°C/100%	11%	33%	56%	60%	68%	72%



Red Hot temp. of Yasad shalaka and loss of heat/temperature within 30 sec's :

	Red Hot	After 5 sec.	After 10th sec.	After 15th sec.	After 20th sec.	After 25th sec.	After 30th sec.
mV	16	15	13.2	11	10	7.7	6.5
°C	391°C	367°C	322°C	271°C	246°C	186°C	159°C
%Decrease	391°C/100%	6%	21%	30%	37%	52%	59%



Melting Temp. of Bang shalaka :

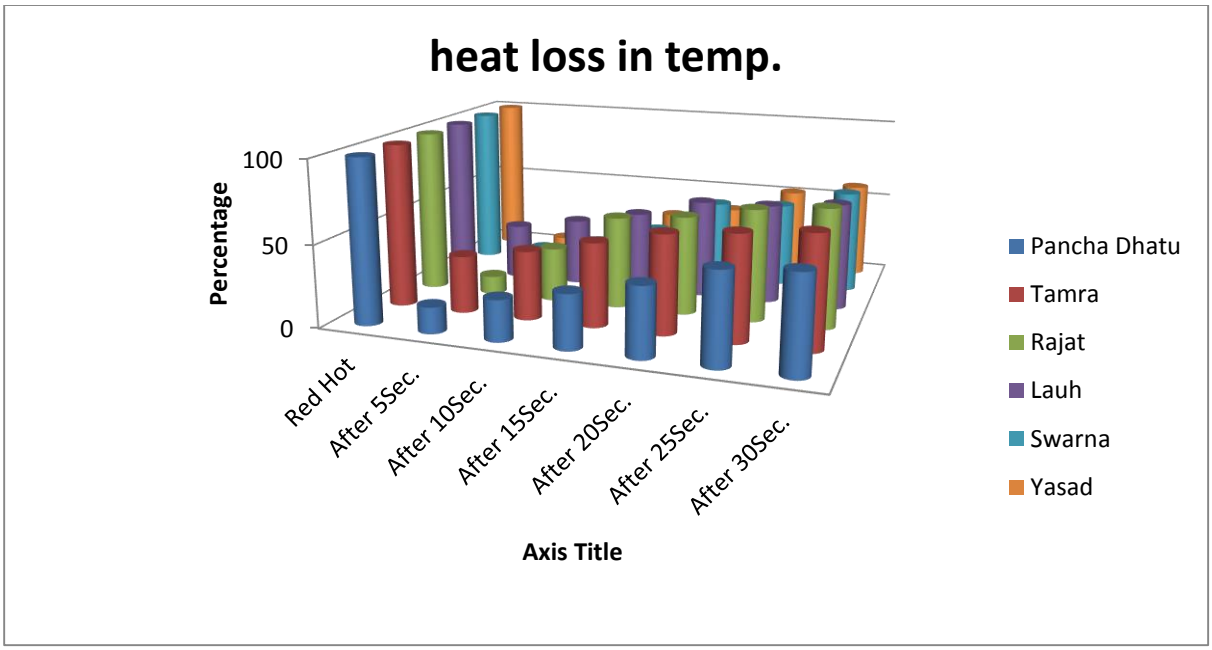
Bang Shalaka Melt at 8.2 mV or 202°C Within 6 sec. on Spirit Lamp. So Agnikarma procedure donot perform because of its low melting point .As per approval of DRC and RPC Banga Shalaka is replace by swarna Shalaka.

SHALAKA	APPROX TIME	TEMPRATURER BY
PANCH DHATU	8 Min.40Sec	GAS STOVE
LAUH	15Min.	GAS STOVE
RAJAT	3Min.2Sec.	SPIRIT LAMP
TAMARA	3Min.4Sec.	SPIRIT LAMP
SWARNA	4. Min.5Sec.	GAS STOVE
YASAD	1Min.56Sec.	SPIRIT LAMP
BANG	6 Sec.(Melt)	SPIRIT LAMP

*The hot shalaka's temperature is also varying from environmental temp.

Percentage Decrease of Temperature in every 5 Seconds of Different shalaka. :

Name of Shalaka	Red Hot	After 5Sec.	After 10Sec.	After 15Sec.	After 20Sec.	After 25Sec.	After 30Sec.
Pancha Dhatu	556°C/100%	16%	25%	33%	42%	55%	58%
	556°C	462°C	417°C	367°C	319°C	246°C	232°C
Tamra	609°C/100%	35%	42%	51%	60%	64%	68%
	609°C	395°C	350°C	295°C	241°C	219°C	192°C
Rajat	626°C/100%	11%	33%	56%	60%	68%	72%
	626°C	556°C	414°C	271°C	246°C	197°C	172°C
Lauh	628°C/100%	34%	41%	49%	60%	62%	65%
	628°C	414°C	367°C	319°C	246°C	239°C	217°C
Swarna	616°C/100%	9%	17%	29%	50%	52%	62%
	616°C	556°C	508°C	433°C	307°C	290°C	224°C
Yasad	391°C/100%	6%	21%	30%	37%	52%	59%
	391°C	367°C	322°C	271°C	246°C	186°C	159°C



References Books:-

1.Sushruta. Acharaya Yadavji Trikamji, Editor.Susruta Samhita with Nibandhasangraha Com of Dalhanacarya and Nyaya Candrika Panjika of Gayadas Acharaya on Nidanasthana; Nidanasthana, Varanasi, by Chaukhambha Orientalia, 2004,

2. Agnivesha. Acharya Jadavji Trikamji,editor. Charaka samhitha with Ayurveda Dipika commentary of Chakrapanidatta;Chikitsasthana, Varanasi, Chaukambha Prakashan, 2007

3.Vagbhatacharya. Astanga Hridaya. Shastri kashinath.Varanasi,Choukambha Orientalia, 1998, .

4. Vagbhata, Sharma Shiv Prasad, Editor. Astanga Sangraha with Shashilekha Commentary, Published by Chaukhamba Sanskrit Series Office, Varanasi. ISBN: 81-7080-186-9,

5 .Bell, Randy. National Educational Technology Standards for Students Curriculum Series: Science Units for Grade 9- .12. City: ISTE, 2005 Gibbons, Patrick. Physics. Boston: Barron's, 1992.

6. Bergman, Lavine, Incropera and DeWitt, Introduction to Heat Transfer (sixth edition), Wiley, 2011

7. Heat Transfer: a practical approach. McGraw-Hill series in mechanical engineering. (2nd ed.). Boston:McGraw- Hill.

8 B.L.Worsnop and H.T.Flint, Advanced Practical Physics for Students Ninth Edition, Macmillan, London.

Bebliography

1. physics.unipune.ernet.in/~phyed/23.1/23.1_teaching.pdf
2. www.nzifst.org.nz/unitoperations/httrtheory3.htm

The Role of *Narayan Taila Matra Basti* in Postoperative Pain Management with special reference to Inguinal Hernia

***DR. S. Subrahmanya Bhat ** Dr Narayan Bavalatti ** DR. Jayakrishna Nayak *** Dr Surekha K.**

Abstract: Post operative pain is inevitable and needs treatment. Acharya Susruta mentioned Seka, Lepakarma for vrunavedana. But these are not practiced in the post operative cases in these days.
It's needed to find an effective Ayurvedic management for post operative pain. Hence a study was conducted to find the efficacy of Narayan taila matra basti in post operative pain management as well as to compare the results with the control group treated with Triphala Guggulu and Gandhaka Rasayana.
Patients who have undergone elective surgery of inguinal hernia were selected from SDM Ayurveda Hospital Udupi, and randomly grouped into two, control group and trial group. Gandhaka Rasayana and Triphala Guggulu were given as routine post operative treatment for both groups. In addition to that, trial group patients were given Narayan taila Matrabasti on previous night before surgery and then repeated once per day after surgery when patients starts feeling pain. This procedure was repeated every day till removal of sutures.
By observing both groups it's clear that Triphala Guggulu and Gandhaka Rasayana controls pain from second day onwards but fails on the day of surgery, whereas Narayan taila Matrabasti succeeded in reducing pain on the day of surgery within two hours in combination with Triphala Guggulu and Gandhaka Rasayana orally on the day of surgery.
The need of NSAID Analgesics could be effectively reduced by using the combination of Triphala Guggulu Gandhaka Rasayana and Narayan Taila Matrabasti.

Key words: - Post operative pain, Clinical study, Narayan Taila Matrabasti ,rescue analgesic.

Introduction: Pain is universal, complex & unique to each person who feels it. Pain represents the fundamental protective mechanism or warning system that is activated in response to potential or actual tissue damage. It is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.

Vagbhata has mentioned about the administration of Madya and food to control the pain during operative procedures for the persons who have less tolerance for the pain. If Paschat karma is not followed properly there will be pain in postoperative period Post operative pain is inevitable and needs treatment. Acharya Susruta mentioned Seka, Lepakarma for vrunavedana. But these are not practiced in the post operative cases in these days. Hence it is needed to find an effective Ayurvedic management for post operative pain.

Aims and objectives: To find the efficacy of Narayan taila matra basti in post operative pain management.

To compare the results with the control group treated with Triphala Guggulu and Gandhaka Rasayana

Materials and methods:Source of Data:

20 patients who have undergone the elective surgery of inguinal hernia from Dhanvantari section from S.D.M. Ayurvedic Hospital, Udupi are selected for the said study.

Methods of collection of data:20 patients of either sex who have undergone surgery are randomly selected will be divided into two groups and subjected to the treatment.

Group A (1st G): For the control group, *Triphala Guggulu* & *Gandhaka Rasayana*, are given thrice a day ,till removal of sutures & continued for one week ,i.e. till next follow up visit .

Group B (2nd G):

For the trial group, along with *Triphala Guggulu* & *Gandhaka Rasayana*, *Narayana taila Matrabasti* was given on previous night before surgery. Then repeated the *Narayana taila matra basti* once per day after surgery when patients starts feeling pain. This procedure was continued every day till removal of sutures.

Narayana taila Matrabasti:*Narayana taila* -30 ml once per day administered as *matra basti*

The observations in pre-operative, intra-operative & post-operative stages are recorded in detail according to the proforma prepared for the study.

Observation period: Observations were done under aseptic precautions till the sutures are removed. The sutures are removed after establishing sufficient tensile strength of the wound edges. Then patients were observed after one week.

Inclusion criteria: Inguinal hernia (uncomplicated and elective cases)
Both male and female
Age in between 20-70 years
Exclusion criteria:
Emergency surgical indications
Patients suffering from systemic and infective diseases like diabetes mellitus, hepatitis, tuberculosis and H.I.V.
Assessment Criteria
The patient's response is assessed on the subjective and objective changes.
Subjective: Pain and tenderness,.
Objective: Visual assessment scale..
The above subjective criteria were graded ranging from 0-3 and visual analog scale is also used. The findings were recorded on 1st, 2nd, 3rd and 6th post operative days.

Table- No 1 General observation of patients of inguinal hernia in Control and Trial Groups*

Age (in yrs)	11-20 0(0)	21-30 3(4)	31-40 3(3)	41-50 1(2)	51-60 3(1)	61-70 0(0)	
Sex	Male 10(10)	Female 0(0)					
Marital Status	Married 6(8)	Unmarried 4(2)					
Religion	Hindu 7(9)	Muslim 3(1)	Christian 0(0)				
Diet	Veg 2(2)	Mixed 8(8)					
Occupation	Labourer 2(2)	Agriculturist 4 (2)	Fisherman 3(2)	Student 1(1)	Driver 0(1)	Employment 0(1)	Cook 0 (1)
Habits	Alcohol 2(2)	Smoking 2(1)	Tobacco chewing 1(1)	None 5(6)			

***Those mentioned in brackets are of Trial Group while others are of Control Group

Table-No 2 Observations during clinical examination of inguinal hernia

Character	**Control group**	**Trial group**	**Total**	**%**
Unilateral	9	10	19	95
Direct	6	3	9	45
Reducible	10	10	20	100

Results: Table No –3 Comparison of Pain of Postoperative Days, between the groups:

Character	Mean	SD	SE	MD	t	p
day –1						
1st G	3.000	0.000	0.000	1.500	9.000	<0.001
2nd G	1.500	0.527	0.167			(H.S.)
day –2						
1st G	2.800	0.422	0.133	0.900	5.400	<0.001
2nd G	1.900	0.316	0.1000			(H.S.)
day –3						
1st G	2.200	0.422	0.133	0.900	4.439	<0.001
2nd G	1.300	0.483	0.153			(H.S.)
day –6						
1st G	0.700	0.483	0.153	0.600	3.286	0.004
2nd G	0.100	0.316	0.100			(H.S.)

Table No -4 Comparison of Tenderness during Postoperative Days, between the groups

Character	Mean	SD	SE	MD	t	p
day –1						
1stG	3.000	0.000	0.000	1.600	9.798	<0.001
2nd G	1.400	0.516	0.163			(H.S.)
day –2						
1st G	2.500	0.527	0.167	0.800	3.539	0.002
2nd G	1.700	0.483	0.153			(H.S.)
day –3						
1st G	1.600	0.516	0.163	0.400	1.549	0.139
2nd G	1.200	0.632	0.200			(N.S.)
day –6						
1st G	0.200	0.422	0.133	0.000	0.000	1.000
2nd G	0.200	0.422	0.133			(N.S.)

Table No –5 Comparison of Intensity of pain as per Visual Assessment Scale during Postoperative Days, between the groups :

Character	Mean	SD	SE	MD	t	p
day –1						
1stG	8.800	0.422	0.133	5.400	13.691	<0.001
2nd G	3.400	1.174	0.371			(H.S.)
day –2						
1st G	6.800	0.632	0.200	4.100	9.245	<0.001
2nd G	2.700	1.252	0.396			(H.S.)
day –3						
1st G	4.500	0.850	0.269	3.200	7.451	<0.001
2nd G	1.300	1.059	0.335			(H.S.)
day –6						
1st G	0.400	0.699	0.221	0.400	1.809	0.087
2nd G	0.000	0.000	0.000			(N.S.)

Discussion: Inguinal hernia is one of the common surgical problems handled in day to day practice. Hence it is selected for this study. The surgical procedure of herniorrhaphy produces an average equal intensity of tissue injury and hence it provides uniform groups of samples for the study. The present study is aimed at analyzing the role of *Narayan Taila Matra Basti* with *Triphala Guggulu* and *Gandhaka Rasayana* in post operative pain management. The risk of post operative pain and its complications can be minimized by pre operative patient education and post operative pain management with various techniques by an experienced surgical team. This present work is aimed at post operative pain management with a specific technique.

As post operative pain depends on the factors like surgical site, psychological status and amount of tissue injury it can be minimized by the proper pre and post operative management.

Table No 1 depicts some of the general observation in the patients of inguinal hernia which includes, an even distribution of patients between the age of 20 -60 years, higher incidence in male persons. There is an anatomical reason for the higher incidence of inguinal hernia in male i.e.

Presence of spermatic cord in inguinal canal. Majority of patients were married, belonged to Hindu religion. It may due to more Hindu population in that particular area. Majority of patients had mixed food habit and occupation was evenly distributed.

The assessment of follow up is made by statistical analysis of the subsequent postoperative days for both the groups and the treatment & observations are recorded on the observation charts. Analysis was done for pain, tenderness, and visual analogue scale (VAS), until the sutures were removed. Throughout the duration of the treatment; discharge, itching, burning, tensile strength of the wound & appearance of the wound was monitored.

1st post operative day: The intensity of the pain , tenderness and VAS scores were recorded daily in all patients, they were given degrees depending upon their severity (Table no. 3,4 & 5). The values were high for the control group or 1st Group on 1st post operative day.This shows that most of these patients needed rescue analgesics in the form of some NSAID. Trial group patients were treated with *narayana taila matra basti* when patient complains of severe pain. No other analgesics were given for trial group. After the administration of *narayana taila matra basti* the pain reduced, and patients felt comfortable as regards to pain, the average time of onset of pain relief was 1 hour 45 minutes. *Basti dravya* was retained until next morning in all the patients. The control group of patients was given rescue analgesics. The difference between the groups was statistically highly significant (H.S.)

2nd post operative day: No patients of trial group complained of severe pain on second day. This could be due to analgesic property of *Triphala Guggulu & Gandhaka Rasayana* as well as the *anulomana* property of *narayana taila matra basti*. The patients in control group had significantly severe pain, tenderness and higher VAS scores on 2ndday also. The difference between the groups was statistically highly significant. Further on 3rd and 6th day no patient complained of clinically significant levels of pain in either group. However, the difference between the groups was statistically significant even on 6th post operative day for assessment of pain. This shows the beneficiary effect of trial therapy throughout the post operative period. The pain of surgery from second day onwards could be effectively controlled with *Triphala Guggulu & Gandhaka Rasayana* in both groups of patients, but the effect was not enough on the day of surgery.

The pain on the day of surgery subsided by the *narayan taila matra basti* (Table No 3). The intensity of tenderness of the 1st day was effectively controlled with *narayana taila matra basti* with *Triphala Guggulu & Gandhaka Rasayana* (Table No 4). Then from 2nd day onwards only *Triphala Guggulu & Gandhaka Rasayana* were enough to control the tenderness.

No significant changes were seen in appearance of the wound, discharge, itching, & burning sensation; suggestive of normal primary healing. None of the patients in trial groups and the control group had septic complications. This suggests *Triphala Guggulu & Gandhaka Rasayana* has a potent inhibitory effect on septic complications which was given to both the groups of patients internally.

There was no discharge, no significant edema & itching in any of the patients. Color of wound was suggestive of good normal healing. The healing of the wound seems to be promoted by *Triphala Guggulu* & *Gandhaka Rasayana*.

Probable mode of action of *Narayan taila matra basti:*There is a direct reference of administering *Basti* in the management of pain caused by *shastra* by Sushruta. Sushruta mentions that in case of wound, which is rough and severely painful due to the vitiation of *Vata Dosha, Basti* is administered. According to Charaka in *Siddhi Sthana, Matra Basti* nourishes and cures diseases caused by the aggravated *Vata Dosha*.

In Astangasangraha, *Siddhi Sthana*, Vagbhata clearly mentions that the *Basti* administered spreads throughout the body through the medium of *Vata* and *Sira* and then cures the disease. *Sneha Dravya* has *Drava, Sara, Snigdha, Picchila, Guru, Sheeta, Mrudhu and Manda Guna* predominantly. Most of these gunas control *Vata Dosha*, which is the causative factor of pain. Here the properties of Narayan taila, controlling the aggravated *Vata Dosha* and provide *Brihmana karma.*

Oral administration has a limitation in the immediate post operative period, whereas *matrabasti* is the one such technique which can be administered at any time. *Matra basti* does *anulomana* of *vata dosha*, therefore the pain is reduced and the pain sustaining capacity of the patient in post operative period is increased

Conclusion:*Narayan taila matrabasti* supplements the analgesic activity of *Triphala Guggulu* and *Gandhaka Rasayana* in the first day of surgery .

1. *Narayan taila matrabasti* was found to be effective for pain management in post surgical patients of hernia. Further trials can be done to prove its efficacy in pain management of other surgeries.
2. Complete post operative pain management with effective Ayurvedic treatment is possible.
3. Effective pain management by *Narayan taila matrabasti* facilitates early rehabilitation.

References

1. Rushman, Davies and Cashman, Lee's Synopsis of Anaesthesia, 12th edition, 2002, International Editions Mumbai
2. Vagbhata, Ashtanga Hridaya with commentaries Sarvaangasundari of Arunadatta and Ayurveda Rasayana of Hemaadri, by Late Dr. Anna Moreshwara Kunte and Krishna Ramachandra Shaastri,8th edition 1998, Chaukhamba Surabharati Prakashana, Varanasi 2002. Pp 956: (Su 29/14)
3. Dwivedi kapiladeva, Vedo Me Ayurveda, Vishwabharati Anusandhana Parishad Jnanapur 200, Pp 175:296
4. Susruta Susruta Samhita Acharya Yadavaji Trikamji Choukambha Sanskrit Samstana Varanasi 1997, Pp824: 396-415
5. Kaviraja Atrideva Guptha, Asthanga Samgraha, vol 2, Krishnadas academy Varanasi,1993, Pp:436:295
6. Dr. Anna Moreshwara Kunte, Vagbhata, Asthangahridayam, Choukamba orientalia, Varanasi, 9th edition 2002 Pp 956:869.
7. Kaviraj Sri Ambikadatta Shastri,Bhaishajya Ratnavali, Choukambha Sanskrit Samstana, Varanasi, 2002, Pp860:556.
8. Bailey & Love Short Practice of Surgery 23rd Edition, Arnold Publication, International Student Edition, PP1348:188.

Rajat And Tamra Shalaka Agnikarma For The Management Of Pain

***Dr. Alok Kumar Srivastava **Prof. D.N.Pande**

ABSTRACT: In medical science Agni Karma means application of Agni directly or indirectly with the help of various materials to relieve or cure the patient of disease. A number of instruments are described in various Ayurvedic texts, according to their shape, nature of function, disease in which they are used.Dahanopakarana are various accessories like drugs, articles and substances used to produce therapeutic burns (samyak dagdha) during Agni Karma chikitsa.
For the assessment of pain,the standard scoring system was used.All the patient were assessed before treatment,after treatment and at interval of 1 week.
In my study it was observed that agnikarma is more useful and acceptable to the patient for the treatment of Janoo sandhi shool (knee joint pain).

KEY WORDS:- Agni Karma,Rajat Shalaka,Tamra Shalaka,Janoo sandhi shool.

INTRODUCTION: Sushruta has mentioned different methods of management of diseases, such as Bheshaja karma, Kshara Karma, Agni karma, Shastrakarma and Raktamokshana. The approach of Agni karma has been mentioned in the context of diseases like Arsha, Arbuda, Bhagandar, Sira, Snayu, Asthi, Sandhigata Vata Vikaras and Gridhrasi . In Ayurveda, various treatment modalities like Siravedha, Agni karma, Basti Chikitsa and palliative medicines are used successfully. Among these, Agni karma procedure seems to be more effective by providing timely relief. Shalakas for Agni karma made up of different Dhatus like gold, silver, copper, iron, etc. for different stages of the disease condition have been proposed.

AIMS AND OBJECTIVES: The present study has been undertaken to fulfill the following aims and objectives:-

- To explore the literature regarding Agnikarma in Ayurvedic and modern text.
- To evaluate the importance of Agnikarma.
- To establish whether Agnikarma is a suitable conservative treatment for pain management.

To make a Evaluation of Rajat and Tamra shalaka Agnikarma for the management of pain.

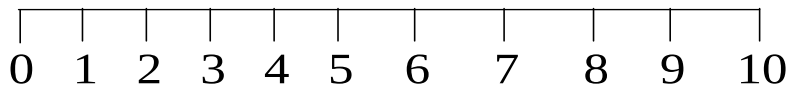
- To reduce the severity and duration of painful condition.
- To provide cheap, safe and effective treatment in pain management.
- To study associated benefits as well as side effects of Agni karma which are not mentioned in ancient classics?
- To standardize an Ayurvedic line of treatment which may prove effective in the management of the pain?

***J.R.-3 **Prof. & Head, Departt. of Sangyaharan,I.M.S., B.H.U., Varanasi-2210005.**

CLINICAL STUDY: Clinical study has been carried out on 20 patients in two groups:
Selection of patients: All the patients attending Sangyaharan Vedanahar clinic suffering from Sandhivata in knee were selected for this study.
Inclusion criteria: Patients having typical clinical features pertaining to above condition.
Patients willing to undergo trial.
Patients between age group 20-70 years, of either sex.
Exclusion criteria :
Patients below 20 years and above 70 years of age.
Patients not willing to undergo trial.
Patient suffering from diabetes mellitus, tubercular arthritis, etc.
Patients of Paittik Prakriti, Alpa Satva, Avar Sahanam, Pregnant woman.
Criteria for assessment:

Improvement in the patient has been assessed mainly on the basis of relief in the cardinal signs and symptoms. To assess the effect of therapy objectively, all the signs and symptoms were given scoring depending on their severity as below:
Pain
Radiation of pain
Tenderness
Ability to do daily routine work
Change in the range of movement
Pain (Ruja)

Visual Analogue scale – 0 to 10
0 = **no pain**
1 - 3 = **mild** pain
4 - 7 = **moderate** pain
8 - 10 = **severe** pain



B) Intensity of Pain-mild/moderate/severe

C)a) No Pain 0

b) No Pain at rest but pain occurs after physical work 1
c) Pain also present at rest but mild 2
d) Pain also present at rest but moderate 3
e) Pain also present at rest but severe 4

2.**Pricing sensation (Toda)**

a) No pricing sensation 0
b) Occasional pricing sensation 1
c) **Constant mild pricing sensation** 2
d) Constant moderate pricing sensation 3
e) Constant severe pricing sensation 4

3. **Unable to do daily routine work by affected part (Daurbalyata**)

a) Can actively do all the routine work 0
b) Can do daily routine work but have to take rest intermittently 1
c) Can do daily routine work but have to take rest very oftenly 2
d) Can't do daily routine work 3

Karnofsky performance scale–

a) Normal activity with no special care 1
b) Unable to work but able to live at home 2
c) Needs hospital care 3

4. Radiation of pain

a) No radiation of pain 0
b) Pain radiates up to thigh 1
c) Pain radiates up to knee joint 2
d) Pain radiates up to leg 3
e) Pain radiates up to ankle 4
f) Pain radiates up to foot 5

5. Tenderness

a) No pain on palpation 0
b) Pain occurs on deep palpation 1
c) Pain occurs on light palpation 2
d) Patient does not allow to touch the Affected part 3

Group A & B:

In this group the patients were treated with

In A group Rajat shalaka & In B group Agnikarma Therapy in 3 sitting.

Exercise – Simple exercise of affected joint for a few minutes at a time but several times a day.

2. **AGE, WEIGHT AND HEIGHT** :

Table 1: The statistical comparison of mean age, mean weight and mean height of the patients between the groups.

Group		Age (years) Mean ± SD	Weight (Kg) Mean ± SD	Height (cm) Mean ± SD
Group A (Rajat)		44.88 ± 13.97	63.16 ± 9.64	164.66 ± 8.73
Group B (Tamra)		48.15± 12.14	62.55 ± 10.98	158.3 ± 11.56
Comparison between groups unpaired 't' test	t value	t = -0.917	t =-0.39	t = -0.24
	p-value	p > 0.05	P > 0.05	P > 0.05
Remark		NS	NS	NS

It is obvious from the above table that mean age, weight and height are statistically comparable and identical ($p > 0.05$) in the patients of both the groups.

Table 2: The statistical comparison of visual analogue scale before treatment and after treatment within the group by applying paired t-test, p-values and remarks are as follows

GROUP		GROUP A	GROUP B
VAS Before Treatment Mean ± SD		5.61 ± 1.41	5.7 ± 0.94
VAS After treatment Mean ± SD		3.66 ± 1.18	2.35 ± 1.17
Comparison within the group	t value	t = 12.11	t = 7.77
	p-value	p < 0.05	P < 0.05
REMARK		S	S

From Table 2:it is observed that changes in visual analogue scale is significant in both groups observed at before treatment vs. after treatment.

Table 3: The statistical comparison of Karnofsky pain scale before treatment and after treatment within the group by applying paired t-test, p-values and remarks are as follows

GROUP		**GROUP A**	**GROUP B**
KSKY Before Treatment Mean ± SD		0.61 ± 0.50	0.75 ± 0.45
KSKY After treatment Mean ± SD		0.05 ± 0.23	0.10 ± 0.315
Comparison within the group	t value	t = 3.01	t = 2.32
	p-value	p < 0.05	P < 0.05
REMARK		S	S

From Table 3 it is observed that changes in Karnofsky pain scale is significant in both groups observed at before treatment vs. after treatment.

Table 4: The statistical comparison of pricking scale before treatment and after treatment within the group by applying paired t-test, p-values and remarks are as follows

GROUP		**GROUP A**	**GROUP B**
Before Treatment Mean ± SD		1.33 ± 0.59	1.05 ± 0.97
After treatment Mean ± SD		0.33 ± 0.48	0.105 ± 0.32
Comparison within the group	t value	t = 7.67	t = 7.11
	p-value	p < 0.05	P < 0.05
REMARK		S	S

From Table 4 it is observed that changes in Pricking scale is significant in both groups observed at before treatment vs. after treatment.

Table 5: The statistical comparison of radiation of pain scale before treatment and after treatment within the groups by applying paired t-test, p-values and remarks are as follows

GROUP		**GROUP A**	**GROUP B**
Before Treatment **Mean ± SD**		1.66 ± 1.23	1.89 ± 1.93
After treatment **Mean ± SD**		0.11 ± 0.32	0.05 ± 0.22
Comparison within the group	t value	t = 3.91	t = 5.43
	p-value	p < 0.05	P < 0.05
REMARK		S	S

From Table 5 it is observed that changes in radiation of pain scale is significant in both groups observed at before treatment vs. after treatment.

Table 6: The statistical comparison of tenderness scale before treatment and after treatment within the groups by applying paired t-test, p-values and remarks are as follows

GROUP		**GROUP A**	**GROUP B**
Before Treatment Mean ± SD		1.27 ± 0.46	1.05 ± 0.59
After treatmentMean ± SD		0.38 ± 0.50	0.15 ± 0.38
Comparison within the group	t value	t = 4.45	t = 6.14
	p-value	p < 0.05	P < 0.05
REMARK		S	S

From Table 6 it is observed that changes in tenderness scale is significant in both groups observed at before treatment vs. after treatment.

CONCLUSION: On the basis of the above observations made on patients treated by Agnikarma chikitsa with Rajat and Tamra Shalaka this can be concluded-

The trial procedure Agnikarma with Rajat and Tamra Shalaka has Vedanahar (analgesic) and Shothahar (anti-inflammatory) properties.

Agnikarma with Rajat and Tamra Shalaka is a simple modality of treatment with minimum complication, which can be taken care of easily.

Agnikarma Chikitsa with Rajat and Tamra Shalaka does not produce any significant side effects.
Agnikarma Chikitsa with Rajat and Tamra Shalaka does not alter normal physiology. No significant changes were observed in mean blood pressure, pulse rate, respiratory rate and oxygen saturation during the whole course of the clinical study.
The Agnikarma Chikitsa with Rajat and Tamra Shalaka is almost equally effective as Vedanahar analgesic.
Number of sittings of Agnikarma depends upon the chronicity and severity of disease.
The efficacy of treatment with Rajat and Tamra Shalaka is identical.
Further, a more detailed study on a large number of samples is required to evaluate biochemical and neurological changes during and after procedure to unfold other properties of Agnikarma.

REFERENCES:

Agnivesha, Shastri Rajeshwardatta, editor. Charaka Samhita Purvardh Commentary of Sastri Kasinatha, Chikitsa Sthana, Varanasi by Chaukhamba Bharati Academy, 2009, Pp. 1024.
Agnivesha, Shastri Rajeshwardatta, editor. Charaka Samhita Uttrardh Commentary of Sastri Kasinatha, Chikitsa Sthana, Varanasi by Chaukhamba Bharati Academy, 2009, Pp. 1208.
Agnivesha. Acharya Jadavji Trikamji,editor. Charaka Samhita with Ayurveda Dipika commentary of Chakrapanidatta; Chikitsasthana, Varanasi, Chaukambha Prakashan, 2007, Pp-738.
American Geriatrics Society : The management of persistent pain in older persons. J Am Geriatr Soc 50 (Supple 6) : 1, 2002.
American Pain Foundation: Pain facts: An overview of American Pain Surveys. Available at www.painfoundation.org
Cassel EJ : The nature of suffering and the goals of medicine. N-Engl. J. Med 306: 639, 1982.
Chronic Pain Association of Canada: Pain Facts. Available at www.chronicpaincanada.com
Goldstein Dtt, Ellis J, Brown R, et al: Recommendations for improved acute pain services : Canadian collaborative acute pain initiative. Pain Res Manag 9: 123, 2004.

A Randomized, Comparitve Clinical Study Of Yashtimadhu Ghrita With Lignocaine Jelly 2% Gauze Packing For Post Haemorrhoidectomy Pain Management

*Dr.Vikas Nigam** Dr.Hemant D Toshikhane ***Dr. S. V. Emmi

ABSTRACT: Post-haemorrhoidectomy pain is intolerable, may be reduced by using less bulky analgesic dressing in the anal canal. In conventional practice we have many modes of treating the pain by lignocaine Jelly2%, glycerin packing, diclofenac suppository which reduces the pain but they may bring delayed wound healing and adaptation of the drug by the patients.The use of Yashtimadhu Ghrita is mentioned in classics after Shastra kriya for pain management. Uncontrolled pain may cause restlessness and thereby delay in wound healing.Hence, this study is planned to evaluate the effect of Yashtimadhu Ghrita for analgesic action in post haemorrhoidectomy case.It was found thatYASHTIMADHU GHRITA shows less analgesic action as per statistical analysis. Observation recorded suggests that the total surgical duration was identical in both the groups. As per VAS scale pain felt by study group was more than control group. First analgesic requirement time was earlier in the study group than control group as per statistical analysis.Yashtimadhu Ghrita is having less analgesic property when compared to the lignocaine 2% jelly. Yastimadhu Ghrita may be used as analgesic as a contineous and repeated application in post-operative anorectal pain and it may be used in regular anorectal pain.

Key Words:*Pain management, Yashtimadhu,Ghrita, Lignocaine2%Jelly, Local anaesthesia,* haemorrhoidectomy

INTRODUCTION

Pain is the most common symptom that brings patients to see a physician and it is the basic and most challenging problem for surgeons from primitive era. Management of post operative pain has been a global challenge since the inception of surgical procedure. The primary requirement of safe and satisfactory surgery is to abolish the pain peri-operatively and post-operatively. Pain is a discorded affective state brought into being by chemical or mechanical changes in various tissues (Barry Wyke). Pain is a complex experience consisting of a physiological (bodily) response to a noxious stimulus followed by an effective (emotional) response to that event. Pain is a warning mechanism that helps to protect organisms by influencing it to withdraw from harmful stimuli. It is primarily associated with injury or the threat of injury, to bodily tissues. (EncyclopediaBritannica)Post-operative pain is non avoidable thing in surgery. The treatment of post operative pain will result in real benefits to the patients and surgical units. Although pain has a purpose in the wider evolutionary sense, it is a largely inappropriate maladaptive response in the post operative period, which is associated with stress and systemic complication like pulmonary, cardiovascular and gastrointestinal [1]. Uncontrolled pain may cause struggling, crying, and restlessness this can result in hematoma formation and thereby delay in wound healing. Adequate pain control leads to decreased manipulation of the surgical site and thus reduces swelling, hematoma formation, and infection [2]. So it is necessary to control post operative pain.Hemorrhoids are one of the most common known chronic anorectal disease .[3]Incidences of hemorrhoids increases with age. At least 50% of persons over age of 50 years haveHaemorrhoids.[4]Hemorrhoid grade 3 and 4 required an operative haemorrhoidectomy to eliminate haemorrhoidal symptoms.

Haemorrhoidectomy is associated with significant pain in post-operative period.[3]Pain after haemorrhoidectomy is a common and distressing experience for patients. Spasm through the internal anal sphincter is one of the supposed causes for pain after hemorrhoidectomy.[3]Concept of mind body relation, psychophysical behavior and neurohumoral alterations due to pain has been very well understood. At present research scholars have also proved the untoward effects of pain and its consequences which alter the physiological functions of different body system and ultimately worsen the condition of a patient . No doubt pain has always been of a great challenge in surgical discipline and hence large number of researches are going on to provide pain free , comfortable surgical and post operative period. Some of the analgesic are being tested to pacify surgical pain viz –anesthetics and analgesic. Whereas others, to pacify post-operative pain and its complications. All these drugs are categories as opioids ,NSAID, and other synthetic and semi synthetic groups, Most of them produce a potent analgesic action but none of them are devoid of their known systemic untoward effects and hence are used with certain limitations.In the text of Ayurveda a large number of drugs are mentioned under the heading *Vedanasthapan, Shothahara, Vatashamaka* and *Shoolaprashamana* groups and at different places with their specific analgesic actions [5] . As per principle of Ayurveda vitiation of *vata* is the prime factor to produce the pain perception along with other systemic consequence like palpitation , depression , insomnia , vomiting , irritation alerted sensorium , hypertension and excitement etc.Post-haemorrhoidectomy pain is intolerable, may be reduced by using less bulky analgesic dressing in the anal canal.[6] In conventional practice we have many modes of treating the pain by lignocaine Jelly2%, glycerin packing, diclofenac suppository which reduces the pain but they may bring delayed wound healing and adaptation of the drug by the patients.[7,8]The use of Yashtimadhu Ghrita is mentioned in classics after shastra kriya for pain management.[9] uncontrolled pain may cause restlessness and thereby delay in wound healing.[2]hence, this study is planned to evaluate the effect of Yashtimadhu Ghrita for analgesic action in post haemorrhoidectomy case.

METHODOLOGY: Anesthesia is achieved by different drugs which will produce amnesia, muscle relaxation and analgesia.Anesthesia is science which mainly deals with pain management in surgery procedures.*Sangyaharan* (Anesthesiology), the science based on the knowledge of Physic-Pharmacology, Biochemistry, Pathology, Biotechnology, Medicine, surgery and lastly the Physics. It is a science of natural phenomena, dealing with assessable, predictable and therefore, reproducible effect of drug on the function of cellular structure of animal and human.

Various experimental and clinical studies have been done so far to assess the analgesic action of some medicinal plants and indigenous compounds. In the present research work an Herbal compound i.e. YASHTIMADHU GHRITA is used for post operative pain management in haemorrhoidectomy operation under local anesthesia.

I) COLLECTION & PREPARATION OF DRUGS

Ingredients: YASHTIMADHU GHRITA

1.*Yashtimadhu churna*

2.*Ghrita*

Prepared Yashtimadhu churna and Ghrita was procured from GMP certified KLE Ayurvedic pharmacy Kasbhag, Belgaum. 5gm of Yashtimadhu churna and 5gm of Ghrita kept separately in air tight pouches .15 pouch of yashtimadhu churna and 15 pouch of Ghrita were made. As mentioned in the texts of Ayurveda Yashtimadhu Ghrita prepared instantly by taking sterile bowl poured with 5gm of ghrita leukwarmed and mixed 5 gm of Yashtimadhu churna in this and applied with 2×2 inch gauze roll after Haemorrhoidectomy.

II) SELECTION OF THE PATIENTS:

In this randomized clinical trial we selected 30 patients of either sex of A.S.A (American Society of Anesthesiologists) grade I or II from IPD of shalya ward from KLES Ayurvedic hospital shahapur Belgaum. Who was undergone haemorrhoidectomy operation under local anesthesiaall patients of group A & B were given Local anesthesia. Patients suffering from severe systemic diseases such as Bronchial asthma, Cardiac diseases, Renal Failure ,who is Chronic alcoholic , chronic smoker, Known diabetes and hypertension, Patients on Anti-depressant and Anti-psychotic drugs, Operation under spinal or general anesthesia is excluded from this study. The study was conducted after proper written consent of individual patients explaining the methodology and aim of the study.

GROUPING OF PATIENTS

Total 30 patient selected for the present clinical study were randomly divided in two equal and identical groups consisting of 15 patients in each group by using computer generated block randomization.

GROUP A (CONTROL GROUP): In this group Lignocaine jelly 2% gauze were applied immediately after Haemorrhoidectomy.

GROUP B (STUDY GROUP):

In this group the patient were applied yashtimadhu ghrita after Haemorrhoidectomy.

Classification of Physical Status by ASA

ASA Grade I – No organic, physiological, biochemical or psychiatric disturbance. The pathological process for which the operation is to be performed is localized and does not entail a systemic disturbance.

ASA Grade II – Mild-to-moderate systemic disturbance caused by the condition to be treated surgically or other pathophysiology (e.g. mild heart disease, diabetes mellitus, mild hypertension, anemia, old age, obesity, mild chronic bronchitis)

ASA Grade III – Limited lifestyle- severe systemic disturbance or disease from any cause; it may not be possible to define the degree of disability with any precision (e.g. angina, severe diabetes mellitus, and cardiac failure.

ASA Grade IV – Severe systemic disorder that is already life-threatening and not always correctable by operation (e.g. marked cardiac insufficiency, persistent angina, severe respiratory, renal or hepatic insufficiency)

ASA Grade V – Moribund. Little chance of survival, but submitted for operation in desperation. Little if any anesthesia required.

If operation is performed as an emergency the risk grade number preceded by the letter "E".

Study Details: All the patients were assessed thoroughly and consent was taken about the proposed research work. Their age (years)**,** weight (kg), and vital status viz. pulse rate, blood pressure, respiratory rate, oxygen-saturation were recorded. General condition, physiological and psychological conditions were also recorded. After complete satisfaction the grouping was done as discussed previous.

A total of 30 patients having haemorrhoidectomy were randomly allocated before surgery to have post-operative packing of anal canal with either Lignocaine jelly 2%gauze roll or with Yashtimadhu ghrita gauze roll with 15 patients in each group. Anal packing was removed after 6 hours if not passed spontaneously.

Post-operative pain was assessed on a Visual Analogue Scale from 0-10 at 0-6hours post-operatively. On removal or spontaneous passage of packing at first bowel action.

Type and Total dose of injectable/oral analgesia administered as required and were recorded simultaneously. Any adverse reaction and complication was also be noted. The Questionnaire for each patient maintained.Observations were recorded on the standard proforma for the study.

After securing IV line, the patients were transferred to Operation Theater and lithotomy position was given over operation table. After all aseptic and antiseptic precaution painting and draping was done .The local anesthesia infiltration was done locally by hypodermic needle no.25 G with drug lignocaine 2%. Intraoperativalypatients were reevaluated thoroughly regarding their vital signs like Pulse, BP, RR, SPO2 and physiology condition etc. Observations were recorded on the standard proforma for the study.

Post operatively time for first analgesic and pain before giving first analgesic is recorded as per case Performa. Pain assessment was done by VAS scale in control and study group medication.

Changes in Vital Status;Blood Pressure:

The cardiovascular depression or excitement is manifested by the changes in blood pressure. Both systolic and diastolic pressures were recorded. The mean blood pressure was calculated by the method of Jennings (1969).

Mean B.P. = 2Diastolic pressure + 1Systolic pressure divided by 3

Any change in the M.B.P. at different stages of study was recorded. B.P. recorded preoperative was considered as base line. Change in blood pressure was again recorded during intraoperative and postoperatively after recovery from anesthesia.

Pulse Rate: At every step of study, any fall or rise in pulse rate was recorded. Pulse rate was recorded preoperative and supposed as base line. Change in pulse rate was again recorded during intraopertivaly and post operatively after recovery from anesthesia.

Respiratory Rate: Any rise or fall in respiratory rate was recorded at every step of study. Respiratory rate was recorded preoperative and supposed as base line. Change in respiratory rate was again recorded during intra operatively and post operatively after recovery from anesthesia.

Total Surgical Time: Times starting from surgical procedure to the completion of surgery were recorded as total surgical time. All vital signs were recorded as described earlier. The physiological and psychological changes during course of anesthesia and surgery was observed and recorded.

Requirement of First dose of Analgesic:

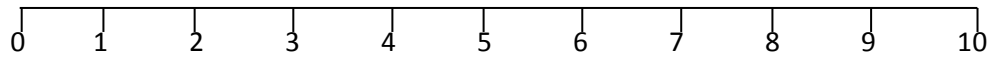
After surgery when the patients complained the minimal pain sensation automatically after the weaning of effect of local anesthesia, the rescue analgesic drug i.e.Inj.Diclofenac sodium 75mg IM was given. It was the first analgesic dose requirement time expressed in minute. Close observation was kept so that patient could not suffer from unnecessary painful state.

Pain Assessment:

VAS Scale it was done by Subjective VAS Scale

Subjective

Assessment of pain by patients (0-10, Visual Analogue scale)



0 = No Pain, 10 = Worst Possible pain

Rescue Analgesic:

As per ethical sight if pain was not controlled by control or study drug rescue analgesic in the form of Inj. Diclofenac sodium 75 mg I/M given and recorded

Statistical Analysis:

All the data collected viz.– Age, blood pressure, pulse rate, respiratory rate, total surgical time, total duration of anesthesia, First analgesic dose requirement time, VAS Scale 0 hour, 2 hour, 4 hour, 6 hour and post anesthetic sequel etc., were also recorded in a properly planned manner with the help of statistician on a master chart. The different statistical values as advocated for comparison e.g. mean, standard deviation (SD), applying unpaired t-test, t-value, p-value, using percentage of incidence and degree of freedom etc, were calculated under the guidance of expert statistician. The observations were noted and were presented in graphical way.

OBSERVATIONS AND RESULTS :GROUPING OF PATIENTS :

Table 1. The number of patients and type of medication in the selected two groups. - Observation was made in patients operated for haemorrhoidectomy under local anesthesia.

Groups	**No. of Patients**	**Drug**
Group A(Control)	15	Lignocaine jelly 2% gauze packing
Group B (Study)	15	Yashtimadhu Ghrita gauze packing

The above table shows the nature and type of medication drugs and number of patients in each group.

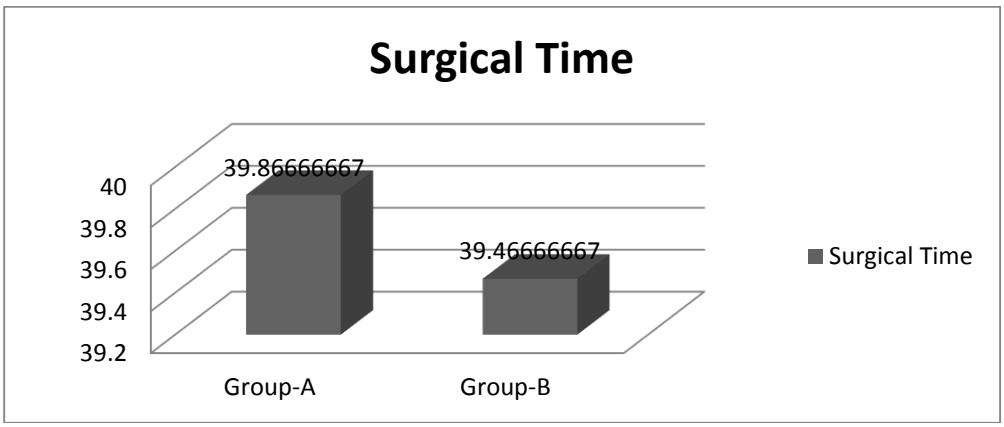
SURGICAL TIME :

Table 2. Mean surgical time in group-A and group-B (expressed in minutes) are as follows.

Parameters	**Group- A (Control) (Mean ± SD)**	**Group- B (Study) (Mean ± SD)**	**t-value**	**p-value**	**Remarks**
Total Surgical Time (min)	39.86±0.49	39.46±0.88	t = 1.474	P=0.1517	NS

Mean surgical time in group-A and group-B expressed in minutes were 39.86 ± 0.49 and 39.46± 0.88, respectively. The statistical comparison between the groups is insignificant.

FIGURE-III: TOTAL SURGICAL TIME



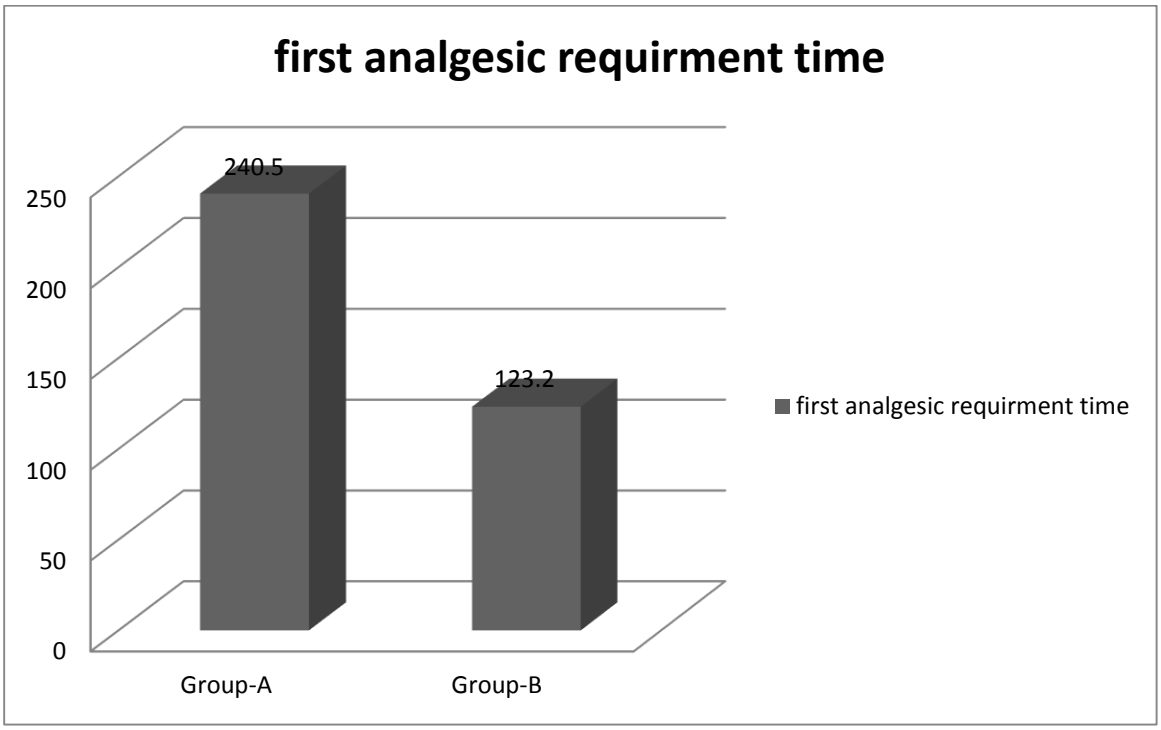
REQUIREMENT TIME OF 1ST DOSE OF ANALGESIC

Table 3. The mean of the 1st analgesic dose requirement time (in minutes) of all patients in group-A and group-B were recorded and statistically compared.

Groups	Mean ± SD(/Min)	t-value	p-value	Remark
Control Group A	240.5 ± 0.9096	t = 51.78	P=<0.05	***
Study Group B	123.2 ± 2.075			

It is obvious from the above table that requirement of the first dose analgesic time in patients of both the groups was not identical. The statistical comparison of first dose analgesic requirement time between the groups is significant

FIGURE-IV: REQUIREMENT TIME OF 1ST DOSE OF ANALGESIC



EFFECT ON VAS Scale-Subjective:

Table 4. This table shows statistical comparison of difference in mean VAS Scale between the groups (2nd hrly) by applying MannWhitney's Test, p-values and remarks are as follows:

Sr. No.	Parameter	Group A(Control)	Group B (Study)	Diff in mean- ± SD	U value	P value	Significance
1	VAS 2	1.2±0.4	7.86±0.49	6.66±0.59	0.0	< 0.0001	Yes

In this study Mean VAS score of Lignocain(control) group is 1.2±0.4, while in Yastimadhu(study) group is 7.86±0.49. It shows statistically significant P value so yastimadhu Ghrita having less analgesic property as compared to Lignocaine 2% jelly.

DISCUSSION :

Pain is an important and most commonly encountered undesirable effect in any surgical procedure. Post operative pain is an anticipated and often feared consequence in patients undergoing surgery.It is a impending warning signal about existence of a problem or threat which needs to be addressed and solved in order to prevent further damage.

Post operative pain is non avoidable thing in surgery. The treatment of post operative pain will result in real benefits to the patients and surgical units. Although pain has a purpose in the wider evolutionary sense, it is a largely inappropriate maladaptive response in the post operative period, which is associated with stress and systemic complication like pulmonary, cardiovascular and gastrointestinal.[10]

Uncontrolled pain may cause struggling, crying, and restlessness this can result in hematoma formation and thereby delay in wound healing. Adequate pain control leads to decreased manipulation of the surgical site and thus reduces swelling, hematoma formation, and infection [1]. So it is necessary to control post operative pain

The description of different types of medicated alcohol to be taken orally before surgery has been described in *Sushruta Samhita* for relieving surgical pain (Su. Sut.17/16-17). In the text of Ayurveda many preparations of drugs have been described to be taken orally or applied locally for acute or chronic painful conditions, and many of these Ayurvedic drugs have also been proved to be good anti-inflammatory in modern era. Present clinical trial is also a same attempt in this direction.

Probable mode of action:

In Ayurveda analgesia is achieved by drugs mentioned in *sangyasthapangana, vedanasthapangana, rasoushadhi, vatharadravayas, vataanuloman* and *shoola prashamana dravyas*. Mode of action of these drugs mainly based on *rasa,virya, vipaka* and *prabhava*. In Susruta Samhita sutra stahna (5/42) mentioned Yashtimadhu Ghrita for Shasatranipatjanya Vedana.This prompted us to evaluate these drugs in anesthesia practice, particularly in relieving the post-operative pain. Therefore, in the present study, a combination of *Yashtimadhu*and *Ghrita* was selected. We prepared Yashtimadhu Ghrita as mentioned in (Ref: Sushruta sutrasthana 5/42) our classics.We evaluated this herbal preparation for post operative pain relief in haemorrhoidectomy operation under local anesthesia. The anti-infalmmatory and other properties of the drugs used in the present study have already been discussed in the chapter of Drug Review.

If we review samprapti of vedana as per ayurvedic classic there cannot be pain without involvement of *vata* but *pitta* and *kapha* influences the nature and intensity of pain. *Acharya Sushrutha* opines that all three *doshas* (*vata, pitta, kapha*) as a whole are responsible for the origin, expansion and perception of pain. In ayurveda any pain will Cause *Doshavaishamyata*. So Drugs which pacify *tridoshas* can be tried for its analgesic efficacy.

The yastimadhu ghrita was used post-operatively i.e. in shashtra abhighatajanya vrana.Hence, pain will be due to the vitiated vata dosha.[11] The yastimadhu is having vatahara properties and ghrita is having tridoshahara properties along with yogavahi might have reduced the pain.

1. Total Surgical Time: The response of analgesic anal packing plays a definite role during post operative period, with reference to duration of surgery. Observation recorded in Table no.3 suggest that a total surgical duration was identical in both groups and statistically insignificant when compare between the groups.

2. Requirement time of first dose of analgesic drugs:ATable 4 shows the difference of mean requirement time (minutes) of the first dose of the analgesic drug between groups A (Control) vs. B (Study) and was significant statistically.

The requirement of post operative analgesia is felt under regional anesthesia when the effect of local anaesthetic drug becoming wash out and patients start feeling pain. The observation recorded Table 4 suggest that the first dose of analgesia 240.5 ± 0.9096 Min.and 123.2 ± 2.075 Min.in patient of group A and group B respectively which was significant. In control group Requirement time of first dose of analgesic drug is late than study group may be because of different mechanism of action of both group drug. Lignocaine act by blocking the Nerve fibres and Yashtimadhu act by its anti-inflammatory action.

This observation suggests pain is felt by study group early than control group. So pain threshold capacity of Lignocaine 2% jelly is more than Yashtimadhu Ghrita.

3. EFFECT ON VAS SCALE (SUBJECTIVE):EFFECT ON VAS Scale-Subjective-First Day

Table no.5 shows The statistical comparison of difference in mean VAS Scale (subjective)between the groups at corresponding time i.e. second(VAS2) of first post operative day by statistical results we can say VAS2 is statistically significant between the group A(Control) and Group B(study) .VAS2 is less in control group that means pain is less than study group so pain threshold capacity of Lignocaine2%Jelly more than Yashtimadhu Ghrita.

4. Analgesic action of the drug: The duration of action of local infiltrated anesthetic i.e lignocaine 2% is 60 to 90 min.[12]In this study, Yashtimadhu Ghrita reduced pain for an average123 min post-operatively. This shows that the study group has analgesic action. Since the tissue handling and inflammation are the main causes for pain in the early post-operative period.[13]so, proven antiinflammatory effect of Yashtimadhu[14, 15] may have contributed for the relief of postoperative pain in the patients treated with Yashtimadhu Ghrita.

CONCLUSION: Yashtimadhu Ghrita is having less analgesic property when compared to the lignocaine 2% jelly.

Yastimadhu Ghrita may be used as analgesic as a contineous and repeated application in post-operative anorectal pain and it may be used in regular anorectal pain.

REFERENCES –

Bharati P, Gupta. Post operative pain management with Godantydi yoga;Thesis Goverenment ayurvedic college paprola, himachal Pradesh University;Himachal Pradesh 2001 .

Joshi, Girish P.Post-operative pain management. International anesthesiology clinics.1994; 32(3). Available from:URL:.http://journals.lww.com/ anesthesiaclinics/ Abstract/1994/32030/Postoperative_Pain_Management.9.asp

Fariborz Eshghi.MD. Seyed Jalal Hosseinimehr et.al:Effects of Aloe vera Cream on Post hemorrhoidectomy Pain and Wound Healing Results of a Randomized, Blind,Placebo Control Study.The Journal Of Alternative And Complementary Medicine;Volume 16,Number 6,2010,pp.647-650

Muhammad Sajid Sheikh* Muhammad Afzal*et.al;Haemorrhoidectomy, A.P.M.C Vol: 2 No.1 January 2008 21

Shukla AV, R Tripathi; Charak samhita;2nd ed; Varanasi; Chaukhamba publication varanasi;2000;vol-1;p.77.

M.Ingram,T.A.Wright And C.J.H. Ingoldby, Department of Surgery, Pinderfield General Hospital Wakefield,UK;"A prospective randomized study of calcium alginate(Sorbsan) versus standard gauze packing following haemorrh oidectomy"J.R. Coll.Surg.Edinb.,43,October 1998,369-370
Xylocaine Jelly - Clinical Pharmacology,http://www.drugs.com/sfx/xylocaine-jelly-side-effects.html
Diclofenac-Rectal Suppository,http://www.netdoctor.co.uk/medicines/100004287.html
Susruta samhita:Hindi Commentary by Ambikadutta Shastri, part.1. pub.by Chaukhamba orientalia Varanasi,2010,su.5/42,page no.27
Merskey NB.A sample list of frequently used terms. International Association for the Study of Pain Task Force on Taxonomy. Classification of Chronic Pain, 2nd ed. Seattle: IASP Press; 1994:209-214
Susruta samhita;Translated by Prof.K.R.Srikantha Murthy,Vol.2pub.by Chaukhamba orientalia Varanasi,seccond eddition 2005,shloka no.23,24,25.pg no.32.
Miller's Anesthesia Edited by Ronald D.Miller,MD;7th edition,vol.1,pub.by Elsevier,pg no.926
Paul PRD,Matos D,Franco M, et al. Why do anal wounds heal adequatley? A study of the local immunoinflammatory defence mechanism.is Colon Rectum 2004;47:1861-1867
(Glycyrrhizin showed anti-arthritic and anti-inflammatory effect on fermaldehyde induced ratpaw oedema in adrenalectirrized rats. It was found to potentiate the anti-arthritic action of hydrocortisone in rats (Gujrat et al 1961
a)Aqueous extract was effective in conjunctivitis, specially in its acute condition; it also showed anti-inflammatory activity like cortisone (J.Res.Ayurveda& Siddha 1988,1,21)

Clinical Monitoring of Obese Patients – A Vision in Ayurveda

*Singh Dilip Kumar **Kumar Vimal *** Pandey K K

Abstract-

In the text of Ayurveda the diseases are classified not only on the basis of etiopathogenesis but a more clear emphasizes was given to the psychophysical constituents (Prakriti) of patients also.Such classifications are more helpful for making plan of treatment , patient monitoring and prognosis of the diseases . Though in the texts of Ayurveda the sign and symptoms related to severity of any disease has been mentioned in their respective contexts but many a times it is found scattered.

The textual references reveal that a special group of patients named - Ashtaunidniya Purusha, has been considered as difficult to treat and not to be hatred . However these eight special psychophysical personalities (Astanindaniya Purusha) were discussed very briefly but are of more clinical importance . In our day to day clinical practice it has been observed that these eight personalities viz. Atidirgha, Atihrsva, Atiloma , Aloma , Atisthula Atikrsna , Atigaura and Atikrsa suffer with many co-existing medical disorders which not only create a problem during course of treatment but also respond in an unexpected manner to treatment modalities.

As the paper is concerned with the problems and monitoring of obese patients in practice of Anaesthesia and Critical care it has been observed that Induction and Monitoring of anaesthesia is more difficult and complicated as compare to other normal built patients . As a matter of fact in an obeys Anatomical and Physiological differences along with many endocrinal and systemic variations are more responsible. Though the modern parameters for the assessment and monitoring have been included in last few decade but the concept for the same was very much clear to our ancient Physician and Surgeons.

Key-words- Astanindaniya , Atidirgha , Atihrsva , Atiloma , Aloma , Atikrsna , Atigaura , Atisthula , Atikrsa, Obesetiy , NIBP , Metabolic , Endocrinal and Pulmonary etc.

*J.R. III,** Senior Resident ,*** Prof. Deptt. of Sangyaharan,I.M.S.,BHU,Varanasi

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Introduction-

Acharya charak has described Ashtau-nindaniya Purusha viz. Atidirgha, ,Atihrsva, Atiloma , Aloma , Atisthula Atikrsna , Atigaura , Atikrsa and explained that these patients are associated with bad therapeutic outcome. In our routine clinical practice it is found very true not only for medical conditions but also in anaesthesia and surgery as well. The possible explanations of Ashtaunindita purusha concept in relation to practice of anaesthesia are as follows-

The literal meanings of eight different personalities are-Atidirgha- very tall, Atihrsva- very short, Atiloma- Too hairy,Aloma- Hairless, Atikrsna- very black, Atigaura- very fair, Atisthula- very obese Atikrsa- very Cachexic. Nindita word here refers to a person whose physical built is not according to principle of treatment and management in many aspects. Ashtaunindita refers to one who is despicable in relation to principles of treatment. Out of eight Caraka has explained only two i.e. sthaulya (Obeys) and krsha (Cachexic) in detail reason may be their more prevalence.

Ashtaunindita are considered as undesirable because they do not possesses sufficient resistive power against diseases.The qualitative and quantitative proportion of body elements (dhatus) are not uniform.

The standard pramana of biological components are abnormal. Vitiation of doshas, dhatus ,agni and malas are more frequent in such patients. An abnormal hormonal activities are more common in such patients.

Pathophysiology of Obesity –

According to Ayurveda due to excessive accumulation of meda in body vata gets obstruction to its normal movement and as a result vata is specially confined to kostha leading to stimulation of digestive power and absorption of food . Digestion of consumed food become very fast due to enhanced agni , that`s why person eats more and more amount of food . In case of delay of taking food patient is afflicted with some serious disorders because it digests the other dhatus. The agni and vata are two most troublesome and complicating. In the events of excessive increase of fat , vata , etc. Which may lead to development of severe disorders and destroy the life of an individual instantaneously.

Criteria of Obesity according to modern Parameter -

BMI- Basal Metabolic Index (Weight in (kg)/height in meter square)

- < 20 - Underweight
- 20-25 - Ideal
- 25-30 - Obese
- 30-35 - Severe obese
- >40 – Severe obese and morbid

Problems in an Obese Patient-

Medical Management- Obesity associated common medical conditions are Diabetes,Hypertension, Hyperlipidemia, Heart diseases,Infertility, Hepatobilary disorders, Cerebrovascular disease, Degenerative joint disease, Chronic back pain ,Gallstones, Increased rates of colon and breast cancer, Asthma are also linked to rising levels of obesity, BMI >29 kg/m2 increases the prevalence of pulmonary embolism, risk of coronary artery diseases is doubled if BMI is > 25kg/m2, BMI 35kg/m2 leads to a 40-fold increase in developing diabetes, respiratory diseases, sleep apnoea and osteoarthritis. Risk of death increases with the increase in body weight and mortality rises exponentially with increasing body weight.

Monitoring of important vitals in an obeys :

Cardiovascular System -

NIBP- Inaccurate reading of actual value is due to more subcutaneous fat and greater mid arm circumference . Measure non-invasive blood pressure with the correct sized cuff. The sphygmomanometer cuff should be 20% greater than the diameter of the upper arm . (If the cuff is too small, the BP will be over-estimated). In the morbidly obese, invasive BP monitoring is advisable

Pulse - Difficult to access due to more subcutaneous fat.

Heart Sounds - Difficult to access again due to more subcutaneous fat.

ECG - Due to more fat voltage cannot reaches to chest surface whereECG leads sets

Chest X-ray - Technically difficult

CVP and Fluid - Difficult I.V cannulation due to more subcutaneous fat

Specific Implications for Anaesthesia :- Intravenous lines -

Peripheral I.V. lines may be difficult. Establish central line in the beginning to avoid calamities. Even these are difficult in morbidly obese.Doppler or ultrasound guided placements could reduce complications

Risk Factors -

Obesity is associated with a number of cardiac risk factors. These include hypertension, ischemic heart disease (IHD), cardiomyopathies, cardiac failure, arrhythmias, sudden cardiac death and dyslipidaemias.

Venous insufficiency, cerebrovascular and peripheral vascular disease exacerbated by atherosclerotic processes may also be present.Increased visceral fat is a cardiovascular risk factor even when the BMI is normal.

Thromboembolic Disease -

DVT- chances of DVTis increased.Deep vein thrombosis appears twice as common in obese patients. It is the commonest complication of bariatric surgery with an incidence of 2.4% - 4.5% and is due to prolonged immobilization, leading to venous stasis, polycythemia, and increased abdominal pressure with increased pressure on deep vein. Decreased fibrinolytic activity with increased fibrinogen concentration could also be responsible.

Specific Implications for Anaesthesia –

Proper assessment of veins for placing infusion must be done in the pre operative visit. Examination of feet and back for any ulcers or sore is mandatory. Examination of calf muscles for any redness or tenderness gives a fairly good idea regarding deep vein thrombosis.

Cardiovascular Pathophisiology -

Higher incidence of cardiovascular morbidity is associated with obesity.Mild to moderate hypertension is found in 60-70% and severe in 5-10%, with 3-4mmHg increase in systolic and 2mmHg increase in diastolic pressure for every 10kg increase of weight is noted. It is the commonest problem followed by ischaemic heart disease. An expansion of extracellular volume resulting in hypervolaemia and increase in cardiac output is characteristic of obesity-induced hypertension. Exact mechanism is not known but interplay of genetic, hormonal, renal and haemodynamic factors are implicated. Hyperinsulinaemia activating sympathetic nervous system, causing sodium retention, increase in pressor norepinephrine and angiotensin II activity.Concentric hypertrophy of left ventricle leads to cardiac failure.Obesity is independent risk factors for Ischaemic Heart Disease (IHD) and is more common in individuals with central obesity.Blood volume is increased, most extra volume being distributed to fat organ. Splanchnic blood flow is increased by 20%, renal and cerebral blood flows are normal.Cardiac arrhythmias can be precipitated in obese by any number of factors, viz. hypoxia, hypercapnia, electrolyte imbalance, diuretic therapy, fatty infiltration of conducting tissue.Obese are at risk of specific form of obesity induced cardiac dysfunction.Left ventricular systolic and diastolic functions are affected.Obesity induced cardiomyopathy is well-documented.Blood volume is increased and cardiac output increase by 20-30ml/kg of excess body fat.They tolerate exercise poorly.Any increase in cardiac output is by increase in heart rate.

Associated Anesthetic Problems-

Intra operative cardiovascular collapse and mortality.

Airway Related Problems –

Obese patients tend to have short, fat necks making both mask ventilation and direct laryngoscopy technically more challenging. The increased bulk of soft tissues in the upper airway make them prone to partial obstruction with the loss of consciousness.Obese women are more likely to have large breasts, which can interfere with easy placement of the laryngoscope. Therefore aim for a degree of head-up tilt, avoid folding the arms across the chest and, if necessary, apply traction on the breasts to allow placement of the laryngoscope.Intubation may be more difficult because of the presence of a fat pad at the back of the neck, or because of deposition of fat into the soft tissues of the neck.Larynx Anteriorly placed - leads to difficulty in intubationReduced Oropharyngial space –leads to difficulty in intubation , ventilation not proper, chances of aspiration increases

Specific Implications for Anaesthesia -

Assessment of Airway – Proper planning of airway management is mandatory. A thorough examination can prevent the catastrophes, as it will enable to select the best technique for the patient. Preoprative evaluation of airway must include. Always assess the airway with the simple, quick bedside tests such as Mallampati, thyromental distance, incisor gap and the ability to sublux the mandible. Combinations of tests improve the positive predictor value.Assessment of head and neck, flexion and extension and lateral rotation.Assessment of jaw mobility and mouth opening. Difficult mask ventilation can sometimes be transformed by placement of an oral airway.Inspection of oropharynx. Check the patency of nostrils

Inspection of previous anesthetic charts.If potential airway obstruction is suspected direct or indirect laryngoscopy, CT scan of soft tissues would be helpful.A rapid sequence induction will often be the safest form of induction.Have all available intubation aids such as bougies and a variety of laryngoscope blades close to hand. . If a fibrescope is available, consider awake intubation but be wary of using any additional sedationEnsure there are adequate numbers of staff should the patient require turning.

Breathing & Respiration:- Pulse oximetry-

Room air pulse oximetry may be a useful screening tool for further investigation . A supine SpO2 <96% on room air may indicate that further investigations (spirometry, arterial blood gases) or referral to a respiratory physician are appropriate.

Obesity and Lung Volume -

FRC – Decreases , obeys patients are more vulnerable for hypoxia ,so proper preoxygenation is very much important in these patient.This will lead to airway closure and desaturation in the supine position, as well as morerapid desaturation if difficulty is encountered intubating the trachea. A careful history should be taken of dyspnoea, exercise tolerance and for obstructive sleep apnoea.Increased mass of abdominal and thoracic contents alters the lung volumes.Decrease in functional residual capacity (FRC) is seen exponentially with increasing BMI. Expiratory reserve volume and total lung capacity are decreased.FRC may be reduced in upright position to the extent that it falls within the range of closing capacity with subsequent small airway closure, ventilation perfusion mismatch, right to left shunting and arterial hypoxemia.The reduction of FRC impairs the capacity of obese patients to tolerate apnoea. They desaturate rapidly after induction of anaesthesia despite preoxygenation due to smaller O2 reservoir and increase in oxygen consumption.Residual volume remains normal or slightly increased due to increased gas trapping and coexisting obstructive airway disease.

Oxygen Consumption and CO2 Production -

Both are increased in obese patients as a result of metabolic activity of excess fat and increased workload on supportive tissues.In exercise O2 consumption rises more sharply than in the non obese.

Compliance and Resistance -

Increased BMI exponentially decreases compliance. As fat content increases, compliance decreases. This is due to increase in pulmonary blood volume, increased total respiratory resistance and shallow rapid breathing, which can limit maximum ventilatory capacity. These are more markedly observed in supine position.The increased body mass and metabolically active adipose tissue leads to increased oxygen consumption and carbon dioxide production.Minute ventilation is thus increased to achieve normocapnia. There is reduced chest wall compliance, (of up to 30%) due to the heavy chest wall, increased pulmonary blood volume and splinted diaphragm. This reduction in compliance, together with increased respiratory demand results in an increased work of breathing. Airway resistance increases. IPPV requires more pressure .

Specific Implications for Anaesthesia -

These patients are prone to hypoxia even when conscious and will desaturate particularly rapidly once apnoeic as their oxygen reserve is reduced (reduced FRC), and oxygen utilisation increased, thus necessitating meticulous pre-oxygenation.Ideally this should be done with the patient semi erect to increase the time to desaturation. Due to the reduced chest compliance and sheer mass of the chest wall, higher inflation pressures are required to ventilate such patients.Such high pressures preclude the use of the laryngeal mask airway (LMA) for ventilation. Hypoventilation will often occur when breathing spontaneously via an LMA/facemask and thus these techniques are not recommended.Application of PEEP via an endotracheal tube is particularly useful in improving oxygenation by reducing small airways collapse. Extubation is usually best performed with the patient in the sitting position as awake as possible to allow maximal diaphragmatic excursion. Otherwise the left lateral position is very safe initially but abdominal splinting might subsequently lead to hypoxia.The postoperative mortality of the obese patient is double that of the non obese.

As previously stated, these patients are prone to hypoxia due to small airways collapse and shunt. This may be exacerbated if analgesia if inadequate.However, over sedated or narcotised obese patients are even more likely to develop partial airway obstruction. For this reason obese patients should be maintained on oxygen, humidified if possible, on the ward post operatively with continuous pulse oximetry.

Gastrointestinal System -

Obesity and GI Disorders -

Obesity is associated with increase in intra abdominal pressure, high volume and low pH of gastric contents, delayed gastric emptying, and increased incidence of gastro esophageal reflux.

There is a high risk for aspiration of gastric content followed by pneumonia.Gastric volume is 75% higher than the normal individuals.Due to increased intraabdominal pressure – prone for GERD and Increases chances of aspiration

Specific Implications for Anaesthesia-Prescribe oral H2 receptor antagonists (e.g. ranitidine 150mg) or proton pump inhibitors (e.g. omeprazole 20-40mg) routinely 1-2 hours preoperatively .Perform rapid sequence induction with cricoid pressure at induction Extubate when fully awake.

Metabolic & Endocrinal System -

Fatty liver – decreased drug transport and metabolism ,Increased BMR- Increased energy demand NIDDM- high incidenc.Autonomic neuropathy-decreased compensatory response

Specific Implications for Anaesthesia -

Morbidly obese patients have a high incidence of diabetes. They should be assessed for the adequacy of glucose control, e.g. glycosylated haemoglobin, and also for the presence of complications of diabetes, especially cardiac disease, renal disease and autonomic dysfunction.Dietary advice and more careful glucose control peri-operatively may reduce complications such as infection or keto-acidosis.Despite their weight, morbidly obese patients may have a very poor nutritional status and it may be important to address this preoperatively and/or postoperatively.

Drugs, Pharmcodynamics and Kinetics -

Obesity leads to alteration in distribution, binding and elimination of many drugs.For drugs with narrow therapeutic indices like aminoglycosides and digoxin, toxic reactions can occur if patients are dosed according to actual body weight.Drug dose should be reduced keeping the ideal body weight in view; absorption of drugs given orally remains unchanged in obese patient.

Volume of Distribution (VD) -

Apparent volume distribution of a drug in obese patient, depends on number of factors, which include the size of fat organ, increase in lean body mass, increase in blood volume, and cardiac output, reduced total body water, alterations in plasma protein binding and lipophilicity of drug.

High lipophilic drugs have increased volume distribution (Thiopentone). Increase in the volume distribution will reduce the elimination half-life unless the clearance is increased.Thiopentone, Benzodiazepines, and potent inhalation agents, may persist for longer time after discontinuation.Regarding protein binding, alteration may occur due to high levels of cholesterol, which inhibits protein binding, therefore more free drug is available.In contrast increased concentrations of a acid glycoprotein may increase the degree of protein binding of other drugs (e.g. local anaesthetics) so reducing the free plasma fraction.

Elimination -

Clearance is mostly reduced in obese patients.Cardiac failure and decrease in liver blood flow may slow elimination of midazolam and lignocaine.Renal clearance increased is obesity because of the increased renal blood flow and GFR. If renal impairment is present elimination takes longer time.Hepatic metabolism is altered in obese patients for volatile agents.Reductive metabolism of halothane is more in obese patients. This may be important factor in liver injury.

Nephrotoxicity can occur due to high fluoride concentrations with halothane and enflurane.

Sevoflurane has 5% biotransformation but does not show adverse effects.Isoflurane does not increase fluoride concentration, and remains the agent of choice in obese.

Surgical & Mechanical Issues -

Surgery is technically more difficult due to reduced surgical access, difficult visualisation of underlying structures and excess bleeding. This leads to longer operating times, with subsequent exacerbation of many of the factors already mentioned. There is a higher risk of infection. The poor blood supply to the fatty tissues increases the chance of both wound infection and wound dehiscence. There may also be impaired immune system function due to neurohumeral factors.

Position and Transfer of Patient -

Extra care is required in transferring the obese patient and special tables having adequate padding of pressure areas are used.Appropriate manpower to shift is mandatory.

Compression of inferior vena cava is avoided by lateral tilt or a wedge.Transfer of obese patients is done in their own bed.

Type of Anaesthesia-

The use of regional anesthetic techniques for obese patients is increasing in popularity. Regional anesthesia offers distinct advantages over general anesthesia for these patients.A regional anesthetic allows minimal airway manipulation, avoidance of anesthetic drugs with cardiopulmonary depression, and reduced postoperative nausea and vomiting (PONV), as well as greater postoperative pain control.Regional anesthesia may also reduce perioperative and postoperative opioid requirements, which is of critical importance in a patient population prone to postoperative pulmonary complications. However, the limitations of regional anesthesia and the technical difficulties encountered with its use in obese patients must be carefully considered.

Influence of obesity on regional anesthesia-

The anthropometric changes associated with obesity can make performance of peripheral nerve blockade technically difficult .BMI of more than 25 kg/m2 was an independent risk factor for block failure. The rate of block failure increased incrementally with BMI. Of the failed blocks, paravertebral and continuous epidural, continuous supraclavicular, and superficial cervical plexus

blocks had the highest failure rates.Failed blocks often required supplementation with general anesthesia.As with peripheral nerve blocks, establishing neuraxial blockade in the morbidly obese patient can also be challenging.In the obese patient, there may be difficulty in palpating bony landmarks or even identifying the midline, and the presence of fat pockets may result in false-positive loss of resistance during needle placement.Obese patients require less local anesthetic in their epidural and subarachnoid spaces in order to achieve the same level of block when compared with nonobese controls.Although the apparent lower spinal anesthetic dose requirement may be explained by the fact that obese patients have smaller cerebrospinal fluid volumes than nonobese individuals , the reason for the lower epidural anesthetic dose requirement is less clear.However, increased difficulty of performing neuraxial blocks in obese patients must be taken into consideration.Longer spinal and epidural needles may be necessary, and landmarks may be concealed by excess body tissue.

Regional anesthesia and pulmonary function -

Obesity is associated with perioperative hypoxia and an increased risk of postoperative pulmonary complications, including pneumonia and respiratory failure.Opioid analgesia can be dangerous in some obese patients, especially those with obstructive sleep apnea or obesity hypoventilation syndromes. The increased risk of hypoxia, the very high association of obstructive sleep apnea with obesity, and the increased incidence of adverse respiratory events following surgery have led some bariatric anesthesiologists to recommend the use of short-acting opioids and the sparing use of long-acting opioids in the obese population .Epidural anesthesia in obese patients undergoing thoracic and upper abdominal surgery decreases opioid requirements and reduces postoperative pulmonary complications.When combined with a general anesthetic, epidural anesthesia may result in earlier time to tracheal extubation than with a balanced anesthetic alone.

Regional anaesthesia vs General anaesthesia in Obese -

Regional anesthesia is becoming increasingly popular for obese and morbidly obese patients. Nevertheless, difficulties of performing regional techniques must be considered.Despite the fact that a successful regional anesthetic allows minimal manipulation of the airway, it does not free the patient from the potential for airway compromise.Ultrasonography should be used for guidance of peripheral nerve blockade;however,its use for neuraxial blockade remains controversial.We conclude that obesity is not a contraindication for the use of regional anesthesia when performed by an experienced anesthesiologist familiar with morbidly obese surgical patients.

Specific Implications for Anaesthesia -

Where ever it is possible and feasible, regional anaesthesia should be administered.The advantages are that one can reduce the use of opioids, inhalational agents, reduce postoperative complications, and prevent loss of airway and prevention of aspiration. Excellent postoperative analgesia can be give by placing a epidural catheters in sitting position, using ultrasound for identification of the space is helpful. Local anaesthetic requirements are reduced in morbidly obese. Higher blocks are common. Blocks extending above T5 can cause cardiorespiratory collapse. All resuscitation equipment should be handy.

Conclusive Anaesthetic Implication –

Preoperative Examination :

It is important to have a thorough clinical examination with excellent and relevant history looking for hypertension with appropriate sized cuff, signs of cardiac failure, viz. increase in jugular pulse, added heart sounds, pulmonary crackles, hepato jugular reflex and peripheral edema.These signs may be difficult to elicit in the morbidly obese.A thorough assessment of respiratory system for OSA is very essential.

Preoperative Medication :

Avoid narcotics and sedatives. Avoid intramuscular and subcutaneous injections.If fibre optic intubation is planned, include an antisailagogue like glycopyrrolate. All morbidly obese must have acid prophylaxis. A combination of H2 blocker, e.g. ranitidine 150mg and prokinetic e.g. metaclopromide 10mg given orally 12 hrs and 2hrs before surgery will reduce risk of aspiration. Some anaesthetists prefer to give 30ml 0.3 M citrate before induction.Continue the normal medications on day of surgery. Stop ACE inhibitors the day before surgery.Dextrose-Insulin regimen should be followed in all diabetics, unless it is a very short surgical procedure. Insulin requirements may increase in postoperative period.Prophylactic antibiotics are given as per the hospital protocols to prevent from infection, should have discussion with surgeon and microbiologist

References –

1. Bydgi P.S., Rogi Pariksha and Roga Pariksha, (2007), Paramoswarappa's Ayurvediya Vikriti Vijnana, 1st edition, Varanasi, Chaukhambha Sanskrit Saamsthana, p. 376
2. Shankman Z, Shir Y, Brodsky J. Perioperative management of the obese patient. Br J Anaesth 1993, 70: 349-59
3. Adams JP, Murphy PG. Obesity in anaesthesia and intensive care. Br J Anaesth 2000, 85: 91-108
4. Cheah MH, Kam PCA. Obesity: basic science and medical aspects relevant to anaesthetists. Anaesthesia 2005, 60: 1009-25.
5. Saravanakumar K, Rao SG, Cooper GM. Obesity and obstetric anaesthesia. Anaesthesia 2006, 61: 36-48
6. Altermatt FR, Muñoz HR, Delfino AE, Cortínez LI. Pre-oxygenation in the obese patient: effects of position on tolerance to apnoea. British Journal of Anaesthesia 2005; 95: 706-9.
7. Dixon BJ, Dixon JB, Carden R, Burn AJ, Schachter LM, Playfair JM, Laurie CP, O'Brien PE. Preoxygenation is more effective in the 25 degrees head-up position. Anesthesiology 2005; 102: 1110-5.
8. Collins JS, Lemmens HJ, Brodsky JB, Brock-Utne JG, Levitan RM. Laryngoscopy and morbid obesity: a comparison of the "sniff" and "ramped" positions. Obesity Surgery 2004; 14: 1171-5.
9. NATN Standards & Recommendations for Safe Perioperative Practice, 2005. www.natn.org.uk
10. Davies KE, Houghton K, Montgomery JE. Obesity and day-case surgery. Anaesthesia 2001; 56: 1112-5.
11. Bryson GL, Chung F, Cox RG, Crowe MJ, Fuller F, Henderson C, Finegan B, Friedman Z, Miller DR, van Clymen J. Patient selection in ambulatory anaesthesia – an evidence-based review: Part II. Canadian Journal of Anesthesia 2004; 51: 782-94.
12. Practice Guidelines for the Peri-operative Management of Patients with Obstructive Sleep Apnoea. A report of the American Society of Anesthesiologists Task Force. Anesthesiology 2006; 104: 1081-93.
13. Nielsen KC, Guller U, Steele SM, Klein SM, Greengrass RA, Pietrobon R. Influence of Obesity on Surgical Regional Anaesthesia in the Ambulatory setting: an Analysis of 9,308 blocks. Anesthesiology.