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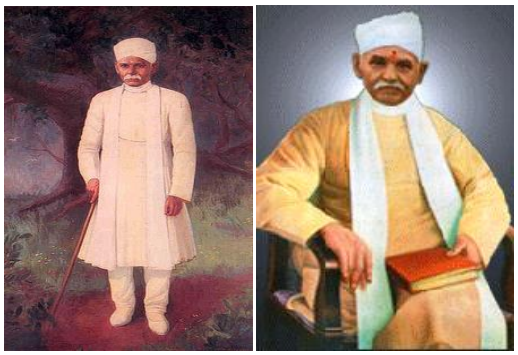
CONTENTS

EDITORIAL BOARD 1
Office Bearer 3
Contents 4
EDITORIAL 5
A Case Report: Shashi Prakash, Rajeev K Dubey , A K Paswan 7
G Yadav , Yashpal Singh, AmritaChaturvedi
Comparative study of Fentanyl and Tramadol for transient retrosternal 8-12
pain during LSCS under Spinal Anesthesia:Y.Singh, S.Prakash ,
K.S Mandal ,Anil Paswan , R.K Dubey & G. Yadav
NEWS 13-20
CONTACTS 21-22
Concept of Pharmacodynamics and Pharmacokinetics in Ayurveda: 23-31
J.K. Choubey & D.N. Pande
Shallaki For Pain Management:Shailendra Singh, S.C.Varshney &D.N.Pande 33-37
Different Types of Shalaka Mentioned In Ayurveda 38-41
A.K. Srivastava, P.K.Bharti &D.N.Pande
Membership Form 42
COMPARATIVE STUDY OF AGNIKARMA AND JALAUKAVACHARAN 43-51
J.K. Choubey, S.C.Varshney & D.N. Pande
Radio Imaging Modalities in Fistula in Ano: S.S.Mishra. 52-56
Role of Kadamba (Anthocephalus indicus) In Post Operative
Pain Management under Spinal Anaesthesia::Pandey K K &Vimal Kumar 57-63

APPEAL

All the life members who had already paid Rs. 500.00 as Life Membership fee are requested to send a DD of Rs. 500.00 in favour of A.A.I.M. payable at Varanasi for purchase of Land of office of Association (C.C.) at Varanasi. The members who will donate Rs. 1001.00 or more will be presented a certificate and their name will be published in the Journal with their Photographs. Due to increase in Postal Charges the Journal will be send only to those members who will send Rs. 100.00 as Postal Charges by M.O./ D.D. in favour of *Sangyaharan Shodh*.

EDITORIAL



Banaras Hindu University is celebrating 150th Birth Anniversary of Great founder of this university-Pt. Madan Mohan Malviya Ji throughout the year. The contribution of Mahamana to the Indian Health Policy is immemorial. Integration of Ancient wisdom – Ayurved with Modern- western medicine was his vision to the world. He was the first visionary in the world who felt to integrate the ancient science with western science. He started the era of integration-19th century. We all the Ayurvedic scholars should salute him for this great task and we should pay homage to him by celebrating his 150th Birth Anniversary all over the country. Every Ayurvedic institution should organize conference, seminar, symposium and workshop in the memory **of Great Son of India and Father of Integration.** The Prime Minister of India Shri Manmohan Singh ji is the Chairman of The committee to celebrate 150th Birth Anniversary of Great founder of this university-Pt. Madan Mohan Malviya Ji. I appeal you all to send a resolution to the Prime Minister in favor of Integration of Pathies world vide and to frame a separate Act for Integration of Medicines. I appeal you all to send a resolution to declare Ayurved as National Health System.

"Truth is on our side, Justice is with us. God will help us. We are sure to win. Vande Mataram"-Pandit Madan Mohan Malviya Ji -Presidential address at Calcutta Congress Session-1933.

JAI HIND JAI SANGYAHARAN JAY AYURVED

Devendra Nath Pande,Chief Editor-Professor & Head, Departt. of S a n g y a h a r a n ,I.M.S., B.H.U., Varanasi.

A Case Report

Tingling sensation in hand after intravenous Regional Anesthesia for Radial Artery Aneurysm surgery

*Shashi Prakash*Rajeev K Dubey *A K Paswan *G Yadav **Yashpal Singh *AmritaChaturvedi

A young 25yrs old male patient, ASA 1, was operated on for right side radial artery aneurysm under intravenous regional anesthesia (IVRA). Premedication was done with Injection Ondansetron 6mg I/V, Injection Fentanyl 25µg I/V and Midazolam 1mg I/V. He received standard preoperative monitoring. Two cannulae were placed; one in a dorsal vein on the dorsum of the operative hand and the other in the opposite hand for crystalloid infusion. The operative arm was elevated for 2 minutes and then exsanguinated with an Esmarch bandage. A pneumatic tourniquet was then placed around the upper arm, and the proximal cuff was inflated to 250 mmHg. Circulatory isolation of the arm was verified by inspection, absence of a radial pulse, and a loss of the pulse oximetry tracing in the ipsilateral index finger. IVRA was achieved with 3mg/kg Lignocaine diluted with saline to a total of 40 ml given over 90 seconds.

After 5 minutes patient started having feeling of warmth and heaviness in that limb and surgical anesthesia was achieved slowly within 10 minutes. After 30 minutes, patient started complaining pain . Then distal tourniquet was inflated and the proximal one was deflated slowly but not completely to relieve tourniquet pain. After the excision of aneurysm distal tourniquet was also deflated slowly and patient was monitored for 20 minutes after the release of both tourniquets for signs and symptoms of systemic toxicity of local anesthetic.

The following day patient started having complaint of tingling sensation in Right hand and forearm with decrease in motor power (4/5). Doppler USG and magnetic resonance angiography was done to rule out any vascular compression of the right upper extremity, which was normal. Preoperative complete blood count, liver and renal function test, erythrocyte sedimentation rate, motor nerve conduction velocity and motor power in all limbs was normal. Postoperatively nerve conduction velocity was done for right upper limb and it was found to be decreased.

Two studies (1, 2) have been done previously which reported prolonged limb numbness and weakness after tourniquet release in post operative period, but both studies showed that it was due to prolonged effect of local anesthetic used during bier's block but there is no previous case report suggesting nerve compression as the cause of tingling sensation. Apart from that, in these studies tingling sensation and weakness persisted for minutes to hours while in our case, tingling sensation and loss of power persisted for one month duration. We postulate that this problem can best be avoided in future by using three tourniquets in place of two, each inflated to 100mmHg above systolic blood pressure alternatively for a duration of 20 minutes, keeping total duration of surgery in mind. Extra care may be needed during exsanguinations in patient with high body mass index.

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References:

Magora F, Stern L, Zylber-Katz E, Olshwang D, Donchin Y, Magora A. Prolonged effect of bupivacaine hydrochloride after cuff release in i.v. regional anaesthesia. Br J Anaesth. 1980 Nov;52(11):1131-6.

Magora F, Stern L, Magora A. Motor nerve conduction in intravenous regional anaesthesia with bupivacaine hydrochloride. Br J .Anaesth. 1980 Nov; 52(11):1123-9.

Comparative study of Fentanyl and Tramadol for transient retrosternal pain during LSCS under Spinal Anesthesia.

*Y.Singh ***S.Prakash **K.S Mandal ***Anil Paswan *** R.K Dubey *** G. Yadav

Key Words: Lower Segment Caesarean Section, retrosternal pain, hemodynamic.

Abstract: In our institution incidence of transient retrosternal pain is about 57%. Patients usually complain retrosternal chest pain just after delivery of baby and feel uncomfortable. Keeping in view these incidences we tried to explore a suitable Remedy to encounter this situation. 60 patients undergoing elective lower segment caesarian section (LSCS) under spinal anaesthesia were randomly divided into two groups by computer generated numbers. Group A (n=30) received intravenous Fentanyl 1µg/kg and Group B (n=30) received intravenous Tramadol 1mg/kg (after intravenous Ondansatron 0.1mg/kg) immediately after complaining of chest pain. It was found that Intravenous Fentanyl is more effective to relieve transient retrosternal pain during L.S.C.S. under Spinal Anesthesia**.**

Introduction:It has been observed that pain may occurs during Lower Segment Caesarean Section (LSCS) under spinal anaesthesia have different etiology at various stages of LSCS. Pain during LSCS can occur at the following points: Skin incision – this indicates an extremely poor level of regional anaesthesia. There is a high risk that general anaesthesia will be needed. Peritoneal incision – this occurs prior to the uterine incision, exteriorization of the uterus ,traction on the uterosacral ligaments or bladder, swabbing of the paracolic gutters, shoulder tip pain – this may be related to blood or amniotic fluid irritating the diaphragm (referred pain from the phrenic nerve, C3-C5) and chest pain – rarely this may be accompanied by ECG changes. The cause of this is unknown although small venous air emboli or coronary artery/ esophageal spasm / reflux have been suggested. Chest pain/retrosternal pain usually occurs immediately after delivery of baby. The treatment options are limited, intravenous (i.v) fentanyl 50 – 100 µg or i.v Alfentanil 100-200 µg, I.V Tramadol 50-100mg after i.v Ondansatron 0.10mg/kg, A 50:50 mixture of oxygen and nitrous oxide (Entonox)[1] or 0.8% sevoflurane[2]by anaesthesia machine. General anaesthesia if pain persists. In our institution incidence of transient retrosternal pain is about 57%. Patients usually complain retrosternal chest pain just after delivery of baby and feel uncomfortable.

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Material and method:

After approval from hospital ethical committee, and informed consent, 60 patients of American Society of Anesthesiologist (ASA) 1 and 11 status undergoing elective lower segment caesarian section (LSCS) under spinal anaesthesia were randomly divided into two groups by computer generated numbers. Patients with history of Ischemic heart disease, Rheumatic heart disease, reflux esophagitis and disarranged hepatic or renal function were excluded from study.

Patients complaining of retrosternal chest pain within 15 minute after delivery of baby were included in study. Group A (n=30) received intravenous Fentanyl 1µg/kg and Group B (n=30) received intravenous Tramadol 1mg/kg (after intravenous Ondansatron 0.1mg/kg) immediately after complaining of chest pain. All patients received tablets Metaclopromide 10mg and ranitidine 150mg on previous night and two hours before surgery by oral route. In all patients subarachnoid block was performed after preloading, in sitting position with 25 gauze spinal needle, by using 2.5 ml of heavy Bupivacaine.

Surgery was not allowed till bilateral sensory block reaches up to T_4 level. Just after delivery of baby all patients receive Oxytocin 5 units slow intravenously and 10 units in 500ml dextrose normal saline slow I.V. infusion over 5 hour according to hospital protocol.

Duration of surgery, time of onset of pain, time required to relieve pain and hemodynamic parameter were observed. Three patients were excluded from study because of partial effect of local anesthetics or sensory level not reaches up to T_4 level.

Result :

There were no significant difference regarding age, body weight and duration of surgery between two groups (Table 1).

Table 1: Demographic profile (Mean ±S.D)

Parameter	**Group A (n =30)**	**Group B (n =30)**
Age (year)	31.24±3.12	30.16±2.32
Body weight (kg)	53.30±7.07	53.35±10.06
Duration of surgery(min)	66.50±16.86	66.25±14.94

Mean time of onset of pain after delivery of baby was 6.74±0.84 and 6.44±0.71minute (min.) for group A and group B respectively. After intravenous injection of Fentanyl pain was relieved in 2.25±0.83min., while after Tramadol pain was relieved in 4.88±1.30min. and it was statically significant ($p<0.05$) between two groups (Table 2). Three patients in Group A and nine patients in Group B still complaining of chest pain but severity was less in Group A than Group B. One patient in Group A and six patients in Group B complaining of nausea and vomiting and it were significant between two groups.

Table 2 Mean time of onset of pain and mean time required to relieve pain after drug administration.

Parameter	**GroupA (n =30)**	**GroupB (n =30)**
Mean time of onset of pain after delivery of baby (min)	6.74±0.84	6.44±0.71
Mean time require to relieve pain after drug administration	2.25±0.83	4.88±1.30
Number of patients with pain inspite of drug administration	2	9
Number of patient with nausea and vomiting	1	6

There were significant fall in heart rate and mean arterial blood pressure from baseline value after subarachnoid block in both group but intergroup comparison shows no statically significant difference (Table 3, 4). At onset of pain there were transient increase in heart rate and mean arterial blood pressure from baseline value in both group and statically significant($p<0.05$) but intergroup comparison shows statically insignificant difference(Table 3,4). After intravenous fentanyl/tramadol heart rate and mean arterial blood pressure approaches towards baseline in both group.

Table 3: Mean Heart rate (per minute) at different time intervals and their comparison with baseline.

Time interval	**Group A (n=30)**	**Group B (n=30)**
Baseline	80.80±8.65	79.90±8.77
10min. after subarachnoid block	72.60±9.69 ($p<0.05$)	72.15±8.65 ($p<0.05$)
At onset of pain	89.30±7.71 ($p<0.05$)	89.65±8.64 ($p<0.05$)
At point when pain relieved	79.80±8.51 ($p>0.05$)	80.65±7.74 ($p>0.05$)
Immediate postoperative recovery room	82.71±8.30 ($p>0.05$)	80.58±8.11 ($p>0.05$)

Table 4: Mean arterial pressure (mmHg) at different time intervals and their comparison with baseline

Time interval	**Group A (n=30)**	**Group B (n=30)**
Baseline	92.35±4.23	92.00±5.01
10min. after subarachnoid block	83.50±3.84 ($p<0.05$)	82.50±5.13 ($p<0.05$)
At onset of pain	94.50±3.23 ($p<0.05$)	95.85±4.06 ($p<0.05$)
At point when pain relieved	91.35±6.23 ($p>0.05$)	93.20±5.07 ($p>0.05$)
Immediate postoperative recovery room	90.65±5.62 ($p>0.05$)	90.11±4.64 ($p>0.05$)

Discussion

The pain causes anxiety for those who suffer it, inducing responses that may involve physiological changes that modify normal patterns in organs and systems of the economy. Acute pain consists of basal or background pain with spikes of more intense pain layered on top of this background. The basal or background pain that can fluctuate over time is called breakthrough pain (BTP). Breakthrough pain, related to some specific activity is known as incidental pain[1].There is no literature addressing treatment of incidental pain occurring on operating table immediately after caesarian section. Breakthrough pain (BTP) is defined as transient increase in pain that raises either to a moderate or severe intensity when baseline pain is well controlled[4]. Incidental pain has fast onset, short duration, and spontaneous characteristics, which makes treatment challenging. There is paucity of literature about treatment of incidental pain in the immediate postsurgical period. Treatment of BTP includes non pharmacologic and pharmacologic techniques. Non-pharmacologic approaches such as patient education regarding deep breathing, relaxation techniques, distraction, ice, heat, corsets, counter irritant creams. The time from onset to peak pain intensity of BTP generally is only a few minutes with variable duration averaging, a half hour. Hence, the agent used should have rapid onset and short duration of action. Intravenous opioids are capable of achieving rapid onset of analgesia[5].

We observed that pain is relieved earlier and more effectively in fentanyl group than tramadol group. This may be due to more potency of fentanyl than tramadol. Fentanyl works on the receptors in the brain for opioids, creating a general sense of euphoria. The brain is protected by a special filter called the blood-brain barrier, but fentanyl is able to quickly cross from the blood into the brain. As a result, fentanyl begins to have its effect almost immediately after it enters the blood. It is a synthetic strong agonist at the mu and kappa opiate receptors.

The mechanism of action of tramadol is mixed, opioids and non-opioids (9). Its affinity for the m receptors has been confirmed by studies of selective block with naloxone, and on the other hand, the effect on increasing the reuptake of norepinephrine and 5- hydroxytryptamine has been demonstrated through inhibition with yohimbine and ritanserina. The analgesic potency of tramadol in relation to morphine is considered of 1/6 and 1/10(10-12). Tramadol use is associated with a high incidence of post-operative nausea and vomiting which limits its usefulness. This major side effect is often managed with a competitive serotonin antagonist, Ondansatron—contributing a pharmacodynamic interaction. Potential also exists for a pharmacokinetic interaction.

Ondansatron is, in part, metabolized by the CYP2D6 iso-enzyme system—an iso-enzyme system responsible for formation of an active tramadol metabolite that has analgesic effect by binding to mu opioid receptors. There is evidence that the concurrent use of these two drugs results in a mutual reduction of effect—tramadol is a less potent analgesic and ondansetron is a less effective as an anti-emetic.

Hemodynamic parameters were comparable between two groups. Incidence of nausea and vomiting was significantly higher in tramadol group and causing discomfort both to patient and surgeon. In tramadol group 30% patients complain persistent chest pain but lesser in severity.

Thus we conclude that fentanyl is better than tramadol in relieving transient retrosternal chest pain after lower segment caesarian section under spinal anaesthesia.

Conclusion:

Intravenous Fentanyl is more effective to relieve transient retrosternal pain during L.S.C.S. under Spinal Anesthesia.

References :

Rosen M. Nitrous oxide for pain relief of labor pain: a systemic review. Am j Obstet Gynecol 2002; 186: S110-26.

Yeo ST, Holdcroft A, Yentis SM, Stewart A. Analgesia with sevoflurane during labour. Br J Anaesth 2007; 98: 105-9.

Taylor DR. Improving outcomes in Acute pain management optimizing patient selection. Neurology & Neurosurgery 2004; 6(2).

Portenoy RK, Payne D, Jacobsen P. Pain 1999; 81: 129-134 (abstract)

Fine PG. Advances in cancer pain management In: Lake CL, Rice LJ, Sperry RJ,eds. Advances in Anesthesia. St Louis, MO: Mosby-Year Book, Inc; 1995; 145.

News from media

Allopathic doctors community supports ISM sector's plea to be part of NCHRH

Peethaambaran Kunnathoor, Chennai

Wednesday, February 08, 2012, 08:00 Hrs [IST]

In their efforts to incorporate the Indian systems of medicine to the NCHRH Bill, the Ayurveda doctors community and practitioners of other Indian system of medicines in the country have received support from an unexpected quarters. In their support, the private allopathic doctors and hospital managements' association, QPMPA, has also urged the union health ministry and the chairman of the parliamentary standing committee on health & family welfare to incorporate the Indian systems to the NCHRH Bill.

The Qualified Private Medical Practitioners Association (QPMPA), after gathering signatures from all of its members, submitted a memorandum to the authorities asking them to review their decision. The allopathic doctors argue that there is no need of a separate Commission/Council for the ISM sector. According to them, all disciplines of health services should be under one umbrella. Regarding research and development in the field of medical or health education, the new bill does not give any direction or idea,theassociationobserved.

Speaking to Pharmabiz, QPMPA secretary Dr Kishore Kumar said the NCHRH Bill does not give a clear picture about how to enhance and promote the standard of education in the health sector. It also fails to facilitate the growth of adequate human resources to the services of hundred crore plus Indian population. While framing the bill the policy makers have forgotten the importance of academic excellence. He said without the association of Indian systems, it is not possible to manage the health needsoftheruralIndia.

As a suggestion to the policy makers of India, Dr Kishore Kumar said for promoting national education on health, the government must conduct a national common admission test and MBBS be made as the minimum qualification to treat a sick person, except dentistry. The MBBS degree holders can specialize in various segments of alternative medicines and follow that line. He pointed out that since the minimum qualification is MBBS, nobody will question or raise suspicion over the methods of treatment and the dignity of the practitioners could be maintained. He alleged that the present NCHRH bill was following the lines of imperial rulers of British colonialism and the Union government should immediately interveneinthematter.

Further, QPMPA suggested that the university concept itself has to be changed provided a national body to control the medical education is realized. All the councils and universities are just to satisfy a group of academicians and politicians. To strengthen the medical education, all the courses should be conducted by respective colleges and those pass out can register with the national body to practice their discipline. It is suggested that NCHRH bill should specifically contain a national common agenda for health education and human resources irrespective of western or Indian systems.

The QPMPA will gather suggestions from doctors of all the states and union territories in support of its decisions and suggestions.

The Confederation of Ayush community in Kerala had earlier submitted a memorandum to the union government requesting inclusion of ISM in the Bill.

26/11 brave heart left to fend for himself

SUNDAY, 10 JUNE 2012 00:06 J GOPIKRISHNAN | NEW DELHI
HITS: 117

Though paralysed and left wheelchair-bound in his selfless service to the nation while saving the lives of 40 persons from Hotel Oberoi during the Mumbai terror attacks, NSG commando and Shaurya Chakra awardee PV Manesh will now have to foot the expenses of his Ayurvedic treatment on his own. And the treatment will continue lifelong.

An unmoved Army Headquarters has categorically informed the Delhi High Court that except allopathy, the forces could not consider reimbursement for treatment under any other medicinal systems, since they could not bend the stringent medical audit rules of the forces.

In fact, the Army HQ has even maintained that the option of permitting an individual to choose the system of medicine he/she desires is not in the interest and ethos of a disciplined force like the Armed Forces.

Incidentally, Defence Minister AK Antony has been using the Ayurvedic system of medicine for the past 15 years and undergoes regular annual treatment for his spondylitis-related problems.

The Pioneer, in its July 20, 2011 edition, had reported the plight of the NSG commando Manesh, who was in coma for six months after shrapnel from the grenade thrown by terrorists pierced his head.

Manesh, who was awarded the Shaurya Chakra for the courageous operation in Hotel Oberoi, Mumbai, on November 27, 2008, was wheelchair-bound and had an unremovable shrapnel in his head when he was discharged after the allopathic treatments from Delhi and Mumbai Army hospitals.

The right side of his body from head to toe was paralysed. The Army gave full salary to him by attaching him to the Territorial Army unit near his home town Kannur in Kerala.

For the past two years, Manesh has been undergoing Ayurveda treatment, which has now made him walk around 100 metres. Travelling 300 kilometres to a well-known private Ayurveda Hospital in Palakad district twice every month, his monthly Ayurvedic medicine expenses come to about `4,000. He needs the treatment for the rest of his life.

After The Pioneer report, a Public Interest Litigation was filed by Advocate Arjun Harkauli at Delhi High Court. Hearing the fate of the brave commando, in August first week, last year then Chief Justice Dipak Misra and Justice Sanjiv Khanna directed the Health Ministry, Defence Ministry, Army, Navy and Air Force to take a positive approach.

The Bench also reminded the Government and Forces about the Central Government's National Policy on Indian System of Medicines and Homeopathy-2002. Observing that all Central Government employees are eligible for reimbursement under other systems of medicines, the bench asked why this policy had not been implemented in the Armed forces and directed the Government and all the Service chiefs to reply within three months.

The Director General of Armed Forces Medical Services (DG-AFMS), representing all the three Forces, however, replied after eight months. "The issue of introduction of Indian Systems of Medicine in the Armed Forces has repeatedly been considered and not agreed to due to valid scientific reasons… The process in the AFMS is monitored very closely by allopathic qualified doctors, which form the hierarchy. The Indian Systems of medicine are completely different and the monitoring progress of patients is outside the purview of Allopathic System. Any deficiency or resultant complications would lead to legal problems," said Lt Gen Mandeep Singh, DG-AFMS.

Citing "problems" in allowing reimbursement of expenses for the life-saving Ayurvedic treatment of the wounded Commando, the Armed forces said: "The AFMS has in existence a very stringent system of medical audit and the other systems cannot lend themselves to such an audit… The option of permitting an individual to choose the system of medicine he/she desires is not in the interest and ethos of a disciplined forces like the Armed Forces, where sometimes strict measures have to be enforced not only to keep an individual fighting fit at all times but also to ensure that a person is free from any infectious disease, which may jeopardise the health and well being of his fellow combatant."

Arjun Harkauli, the advocate who filed the PIL, said he would "go ahead with the legal proceedings by challenging the Armed forces' blind laws to ensure justice to Manesh and other brave soldiers who sacrificed their life for the nation".

"Armed Forces are clearly violating the Government policy on other Systems of Medicines due to the resistance from certain section of allopathic doctors in the forces. Forces are deliberately attempting to avoid merits of the issue. This reply to court shows non-application of mind and is contrary to a 10-year-old Government policy. We are reviewing the reply and shall be taking appropriate legal recourse soon," said the advocate.

LETTER OF Praful Patel, General Secretary, IAF

The International Ayurveda Foundation

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18 October 2011

Dear Ayurveda Associate Members of International Ayurveda Foundation, UK, India and Switzerland, many stakeholders and other experts,

Greetings from Praful Patel of International Ayurveda Foundation! May we send you our warm good wishes for a Happy Diwali and New Year.

We thought we should give you an update as regards IAF's ongoing efforts to study in-depth the potential consequences of a legal challenge to THMPD. Obviously, we are being cautious and are involved in consultation with Barristers, our legal team and other experts who know more about this issue, particularly so regarding what transpired with a unsuccessful legal challenge to the EU's Food Supplements Directive (FSD) that was heard in the European Court of Justice in 2005.

In addition to IAF, you will be aware that the Alliance for Natural Health (ANH)are also currently in the fray to launch a legal challenge to THMPD. In this respect, we should mention that ANH, together with Nutri-Link Ltd, were involved in the above-mentioned legal challenge to the FSD. One of our close friends, Paul Anthony Taylor, Executive Director of the Dr. Rath Health Foundation**www.dr-rath-foundation.org** – a non-profit NGO that carries out research work on scientifically based natural therapies and educational work in the area of health politics – recently had a meeting with us and we learnt a few pertinent points which we are bearing in mind. They are:

- In its legal challenge to the Food Supplements Directive (FSD), ANH prepared an excellent case with many valid arguments. So much so, in fact, that the interim ruling by the European Court of Justice's Advocate General was that the Directive should be scrapped. **http://news.bbc.co.uk/1/hi/health/4411929.stm.** Despite this, however, the final ruling by the full court still found that the Directive was valid. **http://news.bbc.co.uk/1/hi/health/4670971.stm.**

- The legal validity of the FSD was challenged at the European Court of Justice (ECJ) by two separate groups from the UK: the Alliance for Natural Health and Nutri-Link Ltd; and the National Association of Health Stores and Health Food Manufacturers Ltd. Upon referral to the ECJ, the court joined the challenges and considered them as a single case. This would very likely also be the case if there were two separate challenges to the THMPD.

- As the unelected executive body of the European Union, it is a proven fact that the European Commission actively encourages its officials to conceal information from public scrutiny. Definitive evidence of this can be found in a leaked memo, issued internally by the Commission's trade department, which tells officials they can evade European freedom of information laws by making two sets of documents, a neutral one for public release and a classified version for internal use only. **http://www.eu-facts.org/en/pdf/internal-brief-on-access-to-documents-by-eu-dg-trade-2009.pdf** Despite this, the ECJ continues to issue rulings that expand the Commission's powers **http://www.morganlewis.com/pubs/ATRFYI_EUCommissionPowers_16jun09.pdf** and enables the European Union to lawfully suppress political criticism of its institutions. **http://www.telegraph.co.uk/news/worldnews/1325398/Euro-court-outlaws-criticism-of-EU.html.** Significantly, therefore, and as with the FSD case, representatives of the Commission would be present in any ECJ hearing and would submit observations to the court via their agents.
- Sadly, as was proved by the disgraceful secrecy surrounding the Galvin Report, nor can it even be said that the behavior of MEPs, who approved the THMPD in the European Parliament, should be relied upon to be transparent and trustworthy. **http://www.eu-facts.org/en/scandals/galvinreport.html** Significantly, therefore, and as with the FSD case, representatives of the European Parliament would be present in any ECJ hearing and would submit observations to the court via their agents. Given that the Parliament approved the THMPD, we should assume that it would continue to argue in favor of it at the ECJ.

- In cases such as these, ECJ decisions often tend to cite Article 95 of the Treaty establishing the European Community, which requires that, in achieving harmonisation, a high level of protection of human health should be guaranteed. The ECJ's ruling on the FSD legal challenge specifically cited this Article and, given that it is specifically referred to in the THMPD, with the word "safety" notably also appearing 10 times in the text, we have little doubt that it would similarly be used against any legal challenge to the Directive's validity. Our legal experts are conscious of this fact.

- Given the fundamentally undemocratic structure of the EU, it is abundantly clear that draconian laws such as the FSD, the THMPD and the Regulation on Nutrition and Health Claims were not arrived at by accident. Rather than spending valuable time and money on a legal challenge, therefore, it may be wiser to redirect efforts politically. However, we are keeping all legal options open at the moment, but it is important that Ayurveda stakeholders in European Union countries think of a political campaign strategy as soon as possible. Interestingly, to this effect, we note that the current public position of the Dr. Rath Health Foundation is that the entire EU structure should be dismantled. **http://www4.dr-rath-foundation.org/THE_FOUNDATION/dismantling_the_brussels_eu_may11.html**

- As we said earlier, we are involved in intense discussions on the future legal strategy in weighing up our chances of success. We have no intention to jeopardize the future of Ayurveda or TSMs in the European Union. We are closely watching the situation in the European Union as regards the registering or authorizing of THM products since 1 May 2011. **For obvious reasons we are not able to share the legal advice or internal strategy we are working on at the moment, but still intend to organize a closed-door small colloquium of experts to discuss the legal challenge before reaching a final conclusion.**

Christmas and the New Year 2012 is round the corner and we may be in a position to say more at the beginning of 2012. Since our next update will be in early 2012 on behalf of IAF, we wish all of you Season's Greetings for Christmas and a Happy New Year. Let us hope the New Year brings in a new dawn for Ayurveda and TSMs in the European Union.

In the meantime, we are brainstorming on a **political strategy** to campaign in the coming weeks and months. We will write to you about it in due course.

If you have any suggestions or comments, please do not hesitate to write to us. Do visit our website: www.iaf-ngo.org. Please feel free to circulate this note to all our Ayurveda and TSM friends.
With all our good wishes.
Praful Patel
General Secretary, IAF
http://pib.nic.in/newsite/erelease.aspx?relid=78043
http://www.healthnewstrack.com/health-news-2837.html

CONFERENCE CALENDER:

Title	Location	Start Date	End Date
Joint WSSA-BCAS Scientific Meeting	Vancouver, British Columbia Canada	December 07, 2012	December 09, 2012
Comprehensive EKG Update Seminar	Savannah, Georgia United States of America	December 12, 2012	December 12, 2012
Current Concepts in Anesthesia	Savannah, Georgia United States of America	December 13, 2012	December 16, 2012
PGA66	New York, New York United States of America	December 14, 2012	December 18, 2012
Topics in Anesthesia	Ft. Lauderdale, Florida United States of America	December 15, 2012	December 22, 2012

Slew of Initiatives for Ayush Sector in XIITH Plan :Shri Ghulam Nabi Azad

The Union Minister of Health & Family Welfare **Shri Ghulam Nabi Azad** today announced a host of new initiatives being considered for AYUSH sector in the XIIth Plan subject to availability of funds. The Minister was speaking at the Inaugural Function of the 66TH World Homeopathic Congress organised in New Delhi today. Shri Azad said that more stress will be given in the XIIth Plan for Integration of AYUSH systems in health care delivery and their incorporation in National Health Programmes through co-locating such facilities with our sub-centres and primary health care centres.

Speaking about the new initiatives being considered for XIIth Plan, Shri Azad said a National Commission for Human Resource in AYUSH will be set up to undertake a comprehensive work force study and formulate action plans for inter sectoral co-ordination. It is also proposed to set up Referral hospitals in eight National Institutes to provide world class treatment facilities with National Accreditation Board for Hospitals & Healthcare Providers (NABH) accreditation for secondary and tertiary level health care along with Research and Quality Control Laboratories in these Institutes to expand the quality testing facilities in the country for ASU&H products as well as promoting research and training activities at institutional level, he said. Five Hi-Tech Quality Control Labs would be set up under the Research Councils at regional levels with National Accreditation Board for Testing and Calibration Laboratories (NABL) accreditation to expand the quality control to the highest standards, Shri Azad informed. A National Institute of Medicinal Plants is envisaged, which would provide training facilities, demonstration at site, raw materials processing and testing facilities and drugs repository. It is also proposed to have a Central Drugs Controller for AYUSH drugs to facilitate standardization of ASU products and effective enforcement of the provisions of the Drugs and Cosmetic Act with a view to ensure high quality health products to the consumers. During the 12th Plan, the Department also proposes to set up a Homoeopathic Medicines Pharmaceutical Corporation Limited to provide facilities for manufacturing of Homoeopathic medicines to ensure quality and timely supplies to dispensaries, the Minister announced. The Department also intends to set up an All India Institute of Homoeopathy to fulfill the emerging interest of scientists for research in homoeopathy and inculcate better inter-disciplinary understanding for promoting evidence-based use of homoeopathy, Shri Azad stated.

Recalling the highlighting of important achievements of the Department of AYUSH during the 11th Plan, the Minister said three National Institutes were set up during this period, viz, The North Eastern Institute of Folk Medicine, Passighat, Arunachal Pradesh, set up at a cost of Rs.30 crores and the OPD functioning from 2009; The North Eastern Institute of Ayurveda and Homoeopathy, Shillong, Meghalaya, started its OPD from October 2010 at a total cost of Rs. 58 crores; The All India Institute of Ayurveda, New Delhi also started operations from September, 2010 and will be completed at the total cost of Rs.90 crores. A Pharmacopoeia Commission for Indian Medicine was set up this year. Development of identity and quality standards of 256 Ayurveda, Siddha and Unani (ASU) and 92 homoeopathic drugs was done, including quality testing of 1342 ASU and 3709 homoeopathic samples during the 11th Plan. Chairs in Ayurveda and Unani were established in Charite, University of Western Cape, South Africa in 2011 to propagate the teaching of these systems. 1933 Public Health Centers, 260 Community Health Centers and 83 District Hospitals have been supported since 2005 for setting up AYUSH facilities. During the period of the 11th Plan from 2005-06 to 2011-12, Twelve State Drug Testing Laboratories, 17 Pharmacies, 34 State Drug Licensing Authorities, 62 proposals of strengthening enforcement mechanism of ASU drugs and 11 proposals of strengthening in-house quality control laboratories of drug manufacturers were supported by the Department. As a part of National Mission on Medicinal Plants, 732 Nurseries have been set up since 2005 and 70,267 hectares of land have been covered for cultivation of Medicinal Plants, Shri Azad noted.

Addressing the international experts of Homeopathy who have assembled for the four-day Conference on the theme of 'Homeopathy for public Health Issues', Shri Azad stated that in India the Government provides opportunity to every recognized medical system to develop and be practiced with a view to provide integrated and holistic health care services so as to encourage a pluralistic health care delivery system. Shri Azad said many countries are facing challenges in providing basic health care to their citizens due to rising costs of increasingly complex technologies. In this context, systems like Homoeopathy could be useful, where relevant, he emphasized. "World Professional bodies like Liga Medicorum Homeopathica Internationalis have an important role to play here by addressing the

skepticism surrounding the scientific nature and reliability of this system of medicine. It is for LMHI and its members to endeavour to find answers to such misconceptions by showing how the Homeopathic science has evolved over the last 200 years and contributed in overcoming some of the challenging epidemics and other diseases", the Minister said. "The primary health care approach, beginning with the Declaration of Alma-Ata more than 30 years ago, recognized that prevention requires collaboration with multiple health sectors. This is where the relevance of Homoeopathy in health care could come in. The medicines in homoeopathy are widely used in curative care since they are seen as being cost effective, simple and also due to the fact that they are seen to cure certain diseases for which there is no known or effective treatment in other systems', the Minister said.

Shri Azad added that India takes pride in the fact that we have the largest number of traditional and alternative medicine teaching institutions in the world. The Department of AYUSH intends to put in more concerted efforts to streamline the quality of education during 12th Plan with the objective of imparting high quality training and achieving clinical excellence in all our traditional and alternative systems' doctors. He noted that we are also training students from many neighboring countries and that India will continue to be the major hub for all systems of medical education, including homoeopathic education, in Asia with its focus on excellence. Shri Azad said India would be happy to help countries like Srilanka in augmenting their Human Resource needs in field of Homeopathy.

Shri Azad honoured many senior Homeopaths on the occasion as also released books and software prepared by subject experts. The Minister of Indigenous Medicine, Sri Lanka, Shri Salinda Dissanayake, Minister of Health, Medical Education and Elections, Government of Haryana, Secretary Department of AYUSH, GOI Shri Anil Kumar, office bearers of LMHI and other subject experts were present on the occasion. Dr. Jose Matuk Kanan, President, LMHI declared the Congress open for scientific session proceedings. About 2400 delegates from 35 countries are participating in this congress, being hosted in India for the fourth time after the earlier congresses held in 1967, 1977 and 1995.

SBS (ReleaseID:78043)

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CONCEPT OF PHARMACODYNAMICS AND PHARMACOKINETICS IN AYURVEDA

*J.K. Choubey & **D.N. Pande

DRUGS

"Drug is any substance or product that is used or intended to be used to modify or explore physiological systems or pathological states for the benefit of the recipients." W.H.O.

CONCEPT OF DRUG IN AYURVEDA

jksxa Hk;a t;fr bfr Hks"kte~AA vks'kks oh;Z rn~/kkjdRokr~ vkS"k/k A
jl iz/kku vkgkj nzO;a] oh;Z iz/kku vkS"k/knzO;a ¼pØikf.k½
vkgkjksa egkHkS"kT;a mP;rsAA ¼dk0½

According to Drugs & Cosmetics Rule:

ASU drug includes all medicines intended for internal or external use for or in the diagnosis, treatment, mitigation or prevention of disease or disorder in human beings or animals and manufactured exclusively in accordance with the formulae described in the authoritative books of Ayurvedic, Siddha and Unani Tibb. System of medicine specified in the first schedule.

INTRODUCTION

PHARMACON DRUG
LOGOS DISCOURSE IN

Pharmacology is science of drugs. It deals with all aspects of Knowledge about drugs.
The two main divisions of Pharmacology are:

1. PHARMACODYNAMICS
2. PHARMACOKINETICS

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

PHARMACODYNAMICS: what the drug does to body.
PHARMACOKINETICS: what body does to the drug?

O;k.kka xq.kdekZf.k iz;®xk fofo/kkLrFkk

loZ'k® ;«k o.;ZUrs 'kkL=a nzzO;xq.ka fg rr~AA (Acharya P.V. Sharma)

Pharmacodynamics :

It includes:

1. Physiological & Biochemical effects of drugs.
2. Their mechanism of action at organ system.
3. Modification of action of one drug by another drug.

PRINCIPLES OF DRUG ACTION

PRINCIPLE	EXAMPLES
STIMULATION	ADRENALINE STIMULATES HEART
DEPRESSION	BARBITURATES DEPRESS CNS,QUINIDINE DEPRESSES HEART RATE
IRRITATION	BITTERS INCREASE SALIVARY AND GASTRIC SECRETIONS
REPLACEMENT	LEVADOPA IN PARKINSONISM, INSULIN IN DM
CYTOTOXIC	PENICILLIN, CHLOROQUIN, MEBENDAZOLE etc.

MECHANISM OF DRUG ACTION

Some drugs act by their physical or chemical properties.

PROPERTY	EXAMPLE
Physical mass	Bulk laxatives(ispaghula)
Adsorption	Activated charcoal
Osmotic activity	Mannitol
Neutralizing HCl	Antacids

Majority of drugs produce their effects by interacting with Proteins which are grouped into following categories:

1. ENZYMES
2. ION CHANNELS
3. TRANSPORTERS
4. RECEPTORS.

1. ENZYMES: commonly drug acts by inhibition of enzymes which may be non-specific or specific.
2. ION CHANNELS: Drugs affect Ion channels through
   (a) Specific receptors: e.g. G-protein operated Ion channels
   (b) By directly binding to channel & affecting ion movement through it.
3. TRANSPORTERS (CARRIERS) : by interacting with Transporter proteins to inhibit ongoing transport of metabolites.
4. RECEPTORS: binding site located on surface or inside the effector cell which recognizes drug & initiate response to it.

AGONIST : an agent which activates receptor to produce an effect similar to that of physiological signal molecule.
ANTAGONIST: agent which prevents the action of an agonist on receptor.

COMBINED EFFECT OF DRUGS:
SYNERGISM
1. *Additive –*

2. SUPRAADDITIVE
EFFECT OF DRUG A+B > EFFECT OF DRUG A +EFFECT OF DRUG B
ANTAGONISM: **one drug decreases/abolishes action of another.**
Effect of drugs A+B < effect of A + effect of B

PRINCIPLES OF DRUG ACTION
1. Panch mahabhuta Siddhant.
I **i´~pHkwrkReds nsgs AaA lq-lw-46@533**
Composition of body by five Mahabhutas -
Prithvi, Aap, Teja, Vayu, Aakash.

loZa nzO;a ik¥~pHkkSfrdefLeUuFksZ AA p-lw- 26@10

All drug's are *Panchmahabhutatmak* in composition.

Drugs combine with selective *mahabhuta* & alter its quantity& quality & thus act on respective *Doshas, Dhatus, & malas*.

2. Samanya and Vishesh Siddhant

loZnk loZ Hkkokuka lkekU;a o`f/n dkj.ka AaA gzklgsrqfoZ'k¢"k'p ----- AA

p-lw-1@44

Similarity of all substances is always the cause of increase and dissimilarity is the cause of decrease. Both effects by their application.

MECHANISM OF DRUG ACTION

nzO;kf.k fg nzO;izHkkokr~ xq.kizHkkokr~ nzO;xq.kizHkkokr~ rfLeLrfLeu~ dkys

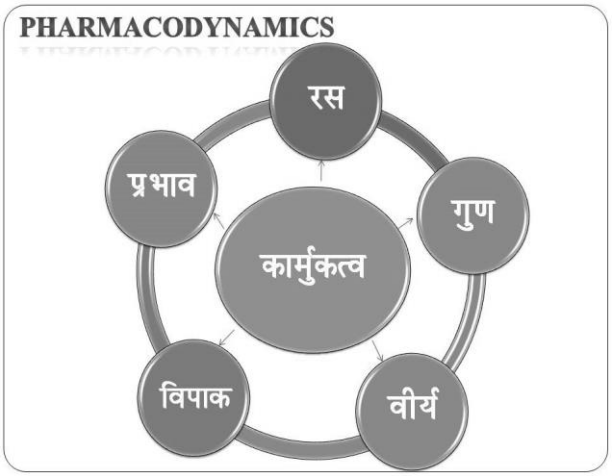
rRrnf/kdj.keklk|rka rka p ;qfDreFkZa p ra refHkizsR; ;r~ dqoZfUr rr~ deZ A p + lw - 26

Drugs act by virtue of their own nature (*dravya prabhava*) or qualities(*guna*) or both on a proper occasion, in a given Location, in appropriate condition & situations. The factor Responsible for manifestation of effect is *virya.* (Potency).

fdafpr~ jlsu dq:rs deZ ikdsu pkije~ A

xq.kkUrjs.k oh;Zs.k izHkkos.kSo fdafpr~ AA v + lw + 9

Some drugs act by their *Rasa*, some act by *Vipak*, others by *Virya*, some *by Guna* & some others act by *Prabhava.*



Action by *Rasa*

RASA	**MAHABHUTA SANGHATAN**	**EFFECT ON DOSA**		
MADHUR	PRITHVI+JALA	VATA HARA	PITTA HARA	KAPHA KARA
AMLA	PRITHVI+AGNI	VATA HARA	PITTA KARA	KAPHA KARA
LAVAN	AGNI+JALA	VATA HARA	PITTA KARA	KAPHA KARA

RASA	**MAHABHUTA SANGHATAN**	**EFFECT ON DOSH**		
KATU	VAYU+AGNI	VATA KARA	PITTA KARA	KAPHA HARA
TIKTA	VAYU+AAKASH	VATA KARA	PITTA HARA	KAPHA HARA
KASHAY	VAYU+PRITHVI	VATA KARA	PITTA HARA	KAPHA HARA

Action by *Guna:* xq.kk ;s mDrk nzO;s 'kjhjsofi rs rFkk A LFkkuo`f){k;kLrLekn~ nsfguka nzO;gsrqdk % AA lq + lw+++ +41

Properties associated with dravya also reside in our body & these *Gunas* of Dravyas are Responsible for equilibrium, increase & decrease of our body.

Action by *VIPAK*

VIPAK	**GUNA**	DOSH EFFECT
Madhura	Snigdha,guru	Kaphakar, vatahar
Amla	Snigdha,laghu	Pittakar,
Katu	Laghu	Vatakar

Action by *VIRYA*

oh;Za rq fdz;rs ;su ;k fdz;k % A

ukoh;Za dq:rs fdafpr~ lokZ oh;Zd`rk fdz;k AA
p + lw +26

The term *VIRYA* represents that aspect of drugs by virtue of which they manifest their action. There cannot be any action without *VIRYA.*

Virya is Potency by which drug acts.

Action by *PRABHAV*

jloh;Zfoikdkuka lkekU; ;= y{;rs A

fo“ks’k% deZ.kka pSo izHkkoLrL; l Le`r% AA

izHkkoks vfpUR; mP;rs A p + lw +26 A

Inspite of similarity of *Rasa, Virya, Vipak,* in two drugs, the Distinctive feature responsible for their distinctive effects is considered as *PRABHAV.*

Combined effect of drugs:

la;ksx Synergism

la;ksx% iqu}Z;kscgwuka ok nzO;k.kka lagrhHkko% l fo”ks’kekjHkrs AA p- fo-1@22

Combination of two or more substances resulting in manifestation of specific attributes which cannot be manifested by individual substances.

Use of *vamanopag* dravya e.g. *yashtimadhu* in *vaman karma*.

fojks/k ANTAGONISM

1 eku fojks/k (quantitative incompatibility)
e.g. madhu and ghrita in equal quantity

2 xq.k fojks/k (Physical and chemical incompatibility)

jl fojks/k - lavan and dugdha oh;Z fojks/k - matsya and dugdha

3 deZ fojks/k (Pharmacological antagonism) *e.g. dhataki and danti*

PHARMACO KINETICS

What the body does to drugs – Pharmacokinetics is a branch of Pharmacology which include absorption, distribution binding/ localization/ storage, bio transformation and excretion of drugs i.e. movement of drug in and alteration of drugs by body.

ABSORPTION

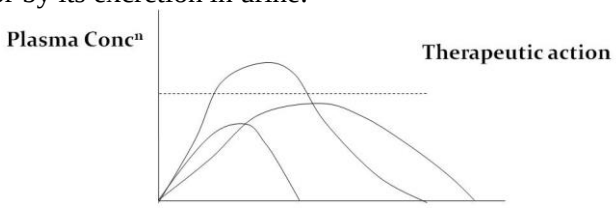
Movement of drug from its site of administration into circulation or Passage of a substance through surface of body into body fluid & tissue.

FACTORS AFFECTING ABSORPTION OF DRUGS
1. Solubility of Drug
2. Route of Administration -
Enteral,
Parental - I.V., I.M., S.C., I.D.,
3. Site of drug application
Vascularity of site
4. Present of food - Delayed absorption
5. Area of absorbing surface.

BIOAVAILABILITY

Measure of fraction of administered dose of a drug that reaches the systemic circulation in unchanged form.

Rate and extent of absorption of drug from a dosage form as determined by its concentration-time curve in Blood or by its excretion in urine.



Plasma concentration time curve

DISTRIBUTION

Defined as volume that accommodate the entire drug in body, if the concentration throughout was the same as in plasma.

AFFECTING FACTORS

1. Lipid solubility of drug
2. Extent of plasma binding and tissue protein
3. Different in regional blood flow
4. Ionization at Physiological pH
5. Pathological State

Bio transformation (METABOLISM)

Chemical Alteration of Drug in Body

Site -

Primary - Liver

Other - Kidney, intestine, lungs

Mechanism -

Non synthetic/Phase I reaction -

Metabolite may be active or inactive

Synthetic/ Phase II -

Metabolite is mostly active state

EXCRETION

EXCRETION IS THE PASSAGE OUT OF SYSTEMICALLY ABSORBED DRUG

DRUG AND THEIR METABOLITES ARE EXCRETED BY:

URINE- THROUGH THE KIDNEY

- WATER SOLUBLE DRUGS
- e.g PENICILLIN ,INDOMETHACIN,SALICYLATES etc.

FAECES- e.g AMPICILLIN, ERYTHROMYCIN etc.

SALIVA AND SWEAT- e.g LITHIUM , POT. IODIDE etc .

EXHALED AIR- eg. GASES , VOLATILE LIQUIDS

ANUPANA

Anupana, used as vehicle after administering the drug (Adhamalla & Narahari)

Anupan is claimed to distribute the drug throughout the body within no time.

;Fkk rSya tys f{kIra {k.ksuSo izliZfr] vuqiku cyknaxs rFkk liZfr Hks"ktaA ¼'kk-e- 6@5½

Different Formulation

DokFk] dYd] pw.kZ ÒS"kT;&dkYk ÒS"kT;dkYk®ÒqDRkkn© eè;si'PkkUeqqgqeqZgqA

lkeqXna ÒDRk la;qDRkaa X]kklXzkklkURkjs n'k AA

DISCUSSION

- Principle of drug action in modern are stimulation, depression, irritation, replacement and cytotoxicity, whereas in Ayurvedic system acting by Panchmahabhuta and Samanya - Vishesha siddhant.
- Mechanism of drug action in modern by physical, chemical, enzymatic, ion channel, transporter, Receptor, whereas in Ayurvedic system by Rasa, guna, virya, vipaka and prabhav.
- In Modern medical Science drug activity at molecular & cellular level is explained. But in ayurvedic system drug activity is explained at ***Panchbhautik*** level.

CONCLUSION:

loZnzO;aiapHk©frde~ vfLeu·Fk¢ZZA

All entity in this universe is made up of Panchmahabhuta & its equilibrium is responsible for healthy state of physiological system & misbalance leads to pathological state.

REFERENCES

1.Agnivesh**,**Carak Samhita, Pt. Kashinath Pandey & Dr.Gorakhnath Chaturvedi, 2005 edition Chaukhamba bharti academy, vns.
2. Sushrut,Sushrut samhita- Comment.Ambika Dutta Shastri,2007 edition, Chaukhamba sanskrit sansthan,vns.
3.Vagbhatta, Ashtang Hridayam - Commentary – Ravidutta Tripathi, 2006, Chaukhamba sanskrit bhawan,vns.
4.Dravya guna vignyan-Aacharya P.V.Sharma 2004 Chaukhamba bharti academy, vns
5.Sharangadhar,Sharangadhar Samhita – comm. – Bramhanand Tripathi, 2006,Chaukhmbha sur bharti prakashan vns.
6. Vriddha jivak ,Kashayap samhita – hindi trans. – Shri Satyapal bhaisagacharya 1973 Chaukhambha sanskrit sansthan,vns.

7. Pt. Narhari,Raj nighantu comm – Dr. Indradev Tripathi,1982, Krishana das academy
8. K.D.Tripathi, Essensials of Medical Pharmacology,2004 Jaypee brother publication New Delhi.

SHALLAKI FOR PAIN MANAGEMENT

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Abstract-A review of literature was done by researcher of deptt . of sangyaharan to collect information regarding the plants which are effective in inflammatory and painful conditions.
In this series rasna, parijat, nirgundi, padmak, bhringraj guggulu etc were found effective in painful and inflammatory conditions.
During review of literature we found information regarding shallaki which was useful for painful and inflammatory conditions like rheumatoid arthritis,osteoarthritis etc.this paper includes all the references collected regarding shallaki.
Keywords- Shallaki, Vedanahar, Shothahar,vatavyadhi,*COX-2, 5-LOX*.

Plant description:

Latin Name- *Boswellia serrata* roxb.

Family-*Burseraceae*

The tree of Sallaki is 8 to 10 meters high. Bark is thin and it peels off easily from its stem. Leaves resemble neem leaves.

Geographical source:

A moderate or large branching tree with a bole 12-15' in height and 3-5' in girth.

Generally found in dry hilly areas. About 10 species of genus Boswellia occur in tropical parts of Asia & Africa.

It is common in most parts of the central provinces, the Deccan, Bihar, Orissa, Rajputana, Central India, Eastern states and north Gujarat, but not found in Bengal, Assam and Burma.

Two varieties are usually distinguished var. serrata with serrate and pubescent leaves and var. Glabra with entire, glabrous leaves. (Wealth of India: 1,208)

Part used:

Kunduru (shallaki Niryasa i.e. gum resin).salai guggulu.

Tapping the tree: on tapping exudes an oleo-gum resin which is known as "Kunduru" or "sallai guggulu" or "Indian olibanum".

Tapping period for kunduru is extends from November to June or July.

The tapping of boswellia gum for industrial purposes has not met with much success, because of very variable yield.

Generally trees over 30" in girth, and also those damaged by borers yield the gum in some quantity, while some trees do not exude any. Dwarfed and suppressed trees or very old trees give poor yield.

Tapping doses not injury to the tree and the method of tapping influences yield.

One method, which is reported to have met with some success, consists in shaving off a thin band of bark (6" in width), 2-2.5" from the base of the tree and freshening it every 4^{th}or 5^{th} day.

The gum exudes usually after first freshening.

J.R. **Former Head, Departt. of Shalya Tantra,Prof. & Head,Departt. of Sangyaharan, I.M.S., B.H.U., Varanasi.**

Adulterants/substitutes:

Large round or club shaped golden tears from *B. casterii* Birdw and *B. frerean* Birdw impored from countries of the Gulf and North Africa, sold in the Indian market by the name Kundur. The oleo gum resin of *B. serratea* is also adulterated with moina gum from *Garuga pinnata* Roxb.

Ayurvedic review-

Gana (class)

Purish viranjaniya (ch. Su 4/15)
Shiro virechana (ch. Vi. 8/151)
Eladi (su. Su. 38/13)
Kashaya skandha (ch. Vi. 8/144)
Rodhradi (su. Su. 38/8)
Kashaya skandh (su. Su. 42/13)

Synonyms:

Shallaki, sallaki, sallaka, sugandha, mukhmoda, gajabhakshya, raj priya, surabhi rasa, nag vadhu, vasa, suvaha, ashwmutri, kunduru, kumbha, kunduruki, hridya, susrava, gandha vira etc.

Uses :

Shallaki has not been mentioned in the V*edic* literatures but it has been explained in Charaka Samhita, Sushruta samhita & Other Samhitas and Nighantus of Ayurveda.

Acharya Charak has advised its use in the treatment of Shvasa, Kasa, Hikka (ch.ch.- 17/117), Vatavyadhi (Bala Taila – Ch. Chi. 28/156) and Gulma – Ashmari (ch.chi. 26/64-65) He has also used in Dhoomvarti (ch. Su. 5/20-24)

Acharya Sushruta has prescribed it in the treatment of Puadansha (su.chi. 19/14), Pittabhishyanda (su. ut. 10/4), Pakvatisara (su.ut. 40/19), Raktatisara (su. ut. 40/22) and Shvasa – Hikka (su. ut. 51/12)

Acharya Bhela has recommended it in the treatment of Vata-vyadhi (Rasna Taila and Mulaka Taila – Bh. Chi 26)

Acharya Harita has also used it in the treatment of Vatavyadhi (kalka, kwatha & Mahabala taila – Ha. Sam. 3rd sthana/chapter-23)

Shallaki has been described in the *Chakradatta*, particularly in the treatment of vata vyadhi (Prasarani taila, kalka paka and Maha sugandha Taila – Vata vyadhi chikitsa)

Raj nighantu describes it as "Kunduruka" (Gandhviroja)Kundurak, Saurashtra, Shikhari, Kunduruka, Kunduka, Tikshna, Gopurak, Bahugandha, Palinda and Bhishan – These are the 10 synonyms of Gandhviroja.

Kunduraka having a madhur, tikshna rasa & is useful in Kapha janya disorders, Pittaj Roga, also in Shaman karma of daha and it causes cool effect in the body by drinking and application on skin. Also used in Pradar roga.

Types of Kunduru- Acc. To it's shape and colour kunduru has been divided into 5 types, in the Unani system of medicine:

Nara Kunduru
Gola (Round)
Dukraka kunduru
Mada kunduru
Kishor kunduru

Properties of Kunduru (Boswellia gum):

The properties of kunduru (Indian olibanum) can be broadly dealt with under three groups; Physical properties

- Chemical properties
- Pharmacological and therapeutic properties

(1) Physical properties

Colour :- The fresh exudtion of boswellia serrata resembled Canada balsam in colour and consistency. It hardens slowly, retaining its golden colour and transparency.

Odour :- The odour is that of olibanum, but fainter and more tevebin thinate. It burns readily and diffuses an agreeable odour (Dymock, warden and Hooper, I/303)

Touch :- Smooth

Taste :- The taste of the kunduru is mainly bitter and astringent.

(2) Chemical properties

Composition: - Acc. To Bull. Imp. Inst., London, 1919, 17,159, Indian olibanum has the following average composition.

Moisture: - 10-11%

Vol. oil: - 8-9%, the oil is usually pale yellow and has an agreeable odour. It is very similar to Turpentine oil.

Resin: - 55-57%

The resin varies in colour from transparent golden brown to dark brown or dark greensh brown. It is very brittle, with a vitreous fracture and resembles colophony in odour and is tasteless.

Gum :- 20-23%

Hydrolysis of the pure gum of B, serrata yields mainly pentoses (65% as arabino se) with high proportion of arabinose.

Galactose and xylose are present only insmall quantities (Malandkar, J.Indian Inst. Sci, 1925, 8A, 240)

The gum also contains oxidizing and diastatic enzymes and 3.303% of total nitrogen (fowler and malandkar, ib, 221)

Insoluble matter: - 4 – 5% (Chemistry laboratory I.P.G.T. and R.A.)

- Loss on drying at 110°C 5.2% w/w
- Ash value 2.25% w/w
- Water soluble extractive 23.1% w/w
- Alcohol soluble extractive 95% w/w

(3) Pharmacological and therapeutic properties

Rasa Madhur, Katu, Tikta

Guna Tikhsna

Veerya Sheeta

Vipaka Katu

Karma Vata and Kapha Rogahara, Svedajanana, Tvachya, pradar a – Jvara – Grihapida, Malinata and mukharoga nas haka (ya. Tri. Acharya).

Rakta shodhaka, Tvachya, Varnaropana, Jvara – Mukharoga - Vataroga – kapharoga – Rakta vikar – Grinapida – Alakshmi Raktatisara and Jantu nashaka (Arya bhishak)

Dosha prabhav : Vata kaphaghna

Bahya karma : *Shothahara, vedanashtapana*, Durgandhanashana, jantughna, Varna shodhana, varnaropana and chakshushya.

Abhyantara karma: Dipana, Pachana, Grahi, Purishaviram janiya, Raktastambhana, Kaphanissarak, svedajanana, Vedana sthapan.

Dose:-(gum resin)1/8 tola to ¼ tola or 5 to 40 grains.

Modern review-

Chemical constituents:

Voletile oil is composed of Sequiterpende, alcohos, anisaldehyde, d-α-thujone, α-pinene, d-α-phellandrende and phenolic compounds.

Indian olibanum contains β-boswellic acid in resin portion, Volatile oil contains P-cymene, α-limonene, terpinolene, α-thujone, α-thujone, α-phellandrene, α-terpiol, bornyl acetate, and methyl chacicol. A diterpene alcohol viz. serratol has been reported from gum resin.

Uses

Indian olibanum is mainly used in treatment of rheumatoid arthritis. It is known to regain integrity of vessels in joints from damage or spasm. It is also used in preparation of licence and as a fixative in perfumes.

Salai guugal is very effective in Osteoarthritis, juvenile rheumatoid arthritis, soft tissue fibrositis and spondylitis without any side effects. The gum significantly increases the level of transminases in serum of rabbit. 3-keto-methyl- β-boswellic ester have been prepared, a pyrazaline derivative [C38H52N3O4, m p 145-47°] exhibited *maximum anti-inflammatory activity*

Mechanism of action-

The ancient herb boswellia (*Boswellia serrata)* has been used for thousands of years to treat conditions that, in recent years, have been found to be caused by inflammation. In the 1970s, German scientists discovered that boswellia produces therapeutic effects similar to those of the non-steroidal anti-inflammatory (NSAID) compounds ibuprofen and aspirin. Unlike boswellia, however, NSAIDs work *by inhibiting the cyclooxygenase-2 (COX-2) enzymes.* Unfortunately, medications that inhibit COX-2 often inhibit COX-1, which is needed to maintain a healthy stomach lining and common side effects include gastrointestinal bleeding.

Boswellia differs from the NSAIDs in its mode of action. Boswellia has been shown to reduce inflammation in both osteoarthritis and rheumatoid arthritis, inflammatory bowel disease, and other autoimmune conditions by blocking the lethal pro-inflammatory enzyme 5-lipoxygenase (5-LOX). A number of immune system chemicals released during the inflammatory response contribute to the chronic inflammation seen in atherosclerosis, osteoarthritis and certain autoimmune diseases. Blocking these pro-inflammatory chemicals reduces symptoms of inflammation and helps taper the autoimmune mechanism.

Although the benefits of boswellia are similar to those of the non-steroidal anti-inflammatory drugs, boswellia works by blocking 5-LOX, which is the first enzyme released in the metabolic pathway leading to the synthesis of the immune system cytokines known as leukotrienes. Leukotrienes are harmful inflammatory substances thought to directly influence the disease The active ingredients of boswellia, the boswellic acids, decrease the activity of another pro-process in a number of different disorders, including rheumatoid arthritis, cancer, and asthma.

Inflammatory enzyme known as human leukocyte elastase (HLE). HLE and leukotriene levels are increased in many inflammatory diseases and allergic reactions. To date, boswellia is the only substance known to reduce levels of both HLE and leukotrienes. In 2005, researchers found that boswellia works in part by altering the expression of the cytokine tumor necrosis factor alpha (TNF-α), another integral component in inflammation. An excess of TNF-α promotes chronic inflammation.
Applying boswellia to cells has been shown to decrease the TNF-α-induced expression of cell adhesion and matrix metalloproteinase proteins, which are biochemicals related to endothelial dysfunction, cancer metastasis (spreading), arthritis, and other disease processes.

Elaine Moore

in short Boswellic Acids:
1. It inhibits the leukotriene biosynthesis in neutrophilic granulocytes.
2. It inhibits proliferation, induce apoptosis and topoisomerases of leukoma and glioma cells and thus prevent leukemia.
3. It has ability to inhibit 5-Lipoxygenase and used as an anti-inflammatory remedy. **Boswellia serrata**
4. It decreases the Polymorphonuclear leukocyte infiltration and migration, decrease primary antibody synthesis and cause almost total inhibition of the classical complement pathway.

Conclusion-on the basis of references it was concluded that ,to confurm the efficacy of shallaki an experimental and clinical study to be carried out for scientific explanation.

References-

1. Dravya Guna Vigyan,Vol. 2, Prof.P.V. Sharma .
2. Purva Karma in relation to Sangyaharan – 1986, Dr. D. N. Pande
3. Dravya Guna Vigyan,Vol. 4-Gyanendra pandey
4. Evaluation of Ashwagandha as a pre anaesthetic agent-1991,Dr.KK Pandey
5. Study of alcoholic extract of Ashwagandha as pre anaesthetic medication-1991,Dr.sanjeev Sharma.
6. Comparative study of Rasna and Parijat Ghana satwa as premedicant in post operative pain management-2001,Dr.R.K. jaiswal
7. Evaluation of Shigru guggulu in Sangyaharan as vedanahar-2005,Dr.B.N. Maurya
8. Role of padmak as pre anaesthetic agent in post operative pain management under regional anaesthesia-2008,Dr. Bhaskar Maurya
9. indian medicinal plant,vol1-P S Varier
10. Bhaw Prakash Nighantu,Dhanwantari Nighantu,Raj nighantu,Nighantu ratnakar,Gada nigrah
11. Vicki Brower, Ancient Herb Suppresses Inflammation, Life Extension Foundation, March 2007: 71-75.
12. De Caterina R, Zampoli A, From asthma to atherosclerosis—5-lipoxygenase, leukotrienes, and inflammation. New England Journal of Medicine, 2004 Jan 1; 350(1): 4-7.
13. Yukari Kawamoto, B.A., Creighton University School of Medicine, Omaha, NE
14. Aaron Levine, M.D., New York-Presbyterian Hospital, The University Hospital of Columbia and Cornell, New York City, NY
15. Fin, Arthur Yin, et al. "Effects of an Acetone Extract of Boswellia carterii Bidw. (Burseraceae) Gum Resin on Rats with Persistent Inflammation." The Journal of Alternative and Complementary Medicine, 11, 2, 2005. pg 323-331.
16. Kimmatkar, N. et al. "Efficacy and tolerability of Boswellia serrata extract in treatment of osteoarthritis of knee – A randomized double blind placebo controlled trial." Phytomedicine 10; 3-7, 2003.
17. Sashwati, Roy, et al. "Human Genome Screen to Identify the Genetic Basis of the Anti-Inflammatory Effects of Boswellia in Microvascular Endothelial Cells." DNA and Cell Biology 24, 4, 2005. p.g. 244-255.

Different Types Of Shalaka Mentioned In Ayurveda

*A.K. Srivastava **P.K.Bharti ***D.N.Pande

Abstract:

Several materials were mentioned for Agnikarma in which Metallic Shalaka were used extensively by Ayurvedacharya for different diseases. We tried to collect information from different sources to explore the best Shalaka which can be used effectively and easily by the practitioners of Ayurved**.**

Key word: Metallic, Pancha Dhatu, therapeutic burns.

Shalaka:

Shalakas are made of different materials.

These Shalaka prepaired by different materials heated at different temperatures were used for Agni Karma as per diseases & its predominant Doshas. Different metals and its temperature were selected for the treatment. For example: In case of Agni karma on skin, less hot Shalakas are used as compared to Agni karma done for diseases of muscular origin where more hot shalakas are used

In catabolic or degenerative diseases gold or silver probe should be used,

similarly in anabolic and hyper growth conditions Pancha dhatu or iron probe can be used.

Average length of Shalaka should be 12 anguli but for practical purpose we can use Shalaka of approximately 3-5 inches in length and thickness depends upon the malleability of the metals.

Type of Shalaka	Temparature-Degree Centi.
GOLD	62
Silver	350
Copper	212
Iron	228

Physical Properties Of Different Metals:-

S.No.	Metal	Latin name	Chemical symbol	Melting point (Centigrade)	Boiling point (Centigrade)	Hardness
1.	Gold	Aurum	Au	1064.43	1800	2.5-3.0
2.	Silver	Argentinum	Ag	961	1955	2.5-3.0
3.	Copper	Cuprum	Cu	1083.4	2310	2.5-3.0
4.	Iron	Ferrum	Fe	1535	3000	4.0-5.0
5.	Tin	Stannum	Sn	231.9	2270	6.7

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Medicinal Properties Of Different Metals:-

S.No.	Metals	Dosha Shaman	Virya	Therapeutic Properties
1.	Swarna	Vata & Pitta	Shita	Vataj & Pittaj shool,Gridhrasi
2.	Rajat	Vata &Pitta	Shita	Nadi Shool,Sandhi vata janya shool
3.	Tamra	Kapha	Ushna	Kaphaj Shool,Vatakantak Shool
4.	Louha	Kapha & Pitta	Shita	Amavata janya Sandhi Shool
5.	Vanga	Kapha & Vata	Ushna	Sandhi Vata janya Shool

Ayurveda' the science of life is time tested science which does not require experimental evidences & its entire field to compare with modern era. It`s all principles are universally applicable to each individual to have a long healthy life. It is such a treaty which is enriched in medicaments and different management for number of diseases. At present the human society is leading with mechanical life, frequent changing of lifestyle, environmental factors, climate, etc. The critical busy schedule, restless, anxiety, stress & strain, running after comfortable life, comparing to higher group curses different psychosomatic disorders. The major somatic disorders involves, the constant work schedule in improper sitting posture, continuous & over exertion, prolonged traveling by different vehicles, less sports activities, exercises, etc. which in fact cause undue pressure on spinal cord, knee joints, shoulder joints, wrist joint and produce low backache, joint pain. While estimating the joint pain and low backache the incidence rate of this disease goes higher than 60%. If this joints pain sustain for a prolonged period with the affection of individual body then the disease tends to manifest it's severity and chronicity. Such tedious, painful disease nowadays enhanced its rate.

Dahanupakarana[31]

Dahanopakarana are various accessories like drugs, articles and substance used to produce therapeutic burns (samyaka dagdha) during Agni karma Chikitsa. They are classified as follows according to various Acharya

They could be classified as -

A. Vanaspatija- Pippalee, (Pipper Longum) ,Yashtimadhu (Glycerrhiza Glabra Linn.) , Haridraa (Curcuma longa), Guda,(jaggery) Sneha Taila, Sarjarasa (herbal).

B. Praanija - Ajashakrita, Godanta, Madhoochchhishta (animal-origin)

Metallic and others- **Pancha Dhaatu (Gold, Silver, Copper, Iron and Brass)** - Shara Shalaaka, Jambavaushtha, Sooryakaanta, Soochi, Stone
For:

1. Tvakgata Vaata Vikaara- Pippalee, Ajashakrita, Godanta, Shara Shalaakaa
2. Maamsagata Vikaara- Jambavaushtha, Panchadhaatu shalaakaa Kshaudra
3. Siraa, Snaayu, Sandhi, Marma- Madhu (Kshaudra), Guda (Jaggery), Sneha.

Dahanupakarana	**Su.**	**Ch.**	**A.S.**	**A.H.**
Pippali	+	-	-	+
Godanta	+	-	-	+
Ajashakrit	+	-		
Shara	+	-	-	+
Shalaka	+	-	-	+
Jambavostha	+	-	-	+
Dhatu	+	-	-	+
Madhu	+	+	+	+
Madhuchista	+	+	+	+
Guda	+	-	+	+
Vasa	+	-	-	-
Ghrita	+	+	-	-
Tailam	+	+	-	-
Vasa	-	+	-	-
Majja	-	+	-	-
Varti	-	-	-	+
Suryakanta	-	-	+	+
Ardhenduvaktra shalaka	+	-	+	+
Kolasthidal tulya shalaka	+	-	+	+
Nadi yantra	-	-	-	+
Suchi	-	-	+	-

Components of *Panchadhatu Shalaka*

Tamra (copper) → 40%
Loha (iron) → 30%
Yashada (zinc) → 10%
Rajata (silver) → 10%
Vanga (tin) → 10%

component of Tridhatu shalaka :

Different types of Metal Shalaka can used for AgniKarma but ultimately the three Dhatu Shalaaka consisting of Swarna (Gold) Tamra (copper) and Rajata (Silver) and Panch Dhatu Shalaka were devised and were found to give excellent desired results.

References:-

1.An Ayurvedic Agni Karma in 20th century;By Borase N.K.,1996, Tilak Ayurved Mahavidyalaya,Pune
2.Agni Karma (Ek Adhyayana); By Ghate M.H.,1978, Gujarat Ayurved University Jamnagar
3.Role of AgniKarma in the management of Sandhigata Vata; By Pandya Pragnesh,1990 Gujarat Ayurved University, Jamnagar 4.A
4.Clinical management of Sandhigata Vata w.s.r.cervical spondylosis by AgniKarma Chikitsa;By Mahant J.Vyasdev,2005, Gujarat Ayurved University, Jamnagar .
5.Gridhrasi Roga Par AgniKarma Ki Karmukata; By Verma R.K.,1992, NIA,Jaipur
6.Amavata Mein Agnikarma Va Sinhanada Guggulu Ka Chikitasatmaka Adhyayana ;By Bairwa G.C.,1997, NIA,jaipur
7.Evaluation Of Efficacy of Agnikarma & physical exercises in the management of Kati-shool;By Shrinivash K.K.,1999, NIA,Jaipur
8.Evaluation of Agnikarma in the management of Gridharasi;By Rajaneesh Giri V.,1999 Government Ayurved Medical College Bangalore .
9. AgniKarma in the management of Arshas;By Kulloll Vivekananada,2003 S.D.M.College Of Ayurveda,Hassan .
10. Effect of Agnikarma in Kati-shool;By Sajith M,2002,S.D.M.College Of Ayurveda,Udupi .
11.Role of Agnikarma in Gridharasi-A practical case study;By Pandao P.O.,2000 R.K.Toshaniwal Ayurveda College,Akola
12.To 12.study the effect of Agnikarma on Snayugata Vata;By Pawaw Pravin,2000 Ayurved Mahavidyalaya,Nasik
13.Role of Agnikarma in Management of Frozen Shoulder;By Singh Kulwant,2001 Rajiv Gandhi Govt.P.G.Institute of Ayurveda-Shimla,Poprola 14.Study of
14.Effect of Agnikarma with Svarna-Shalaka on Sandhigata-Shool;By Khare V.A.,1995 Tilak Ayurved Mahavidyalaya,Pune

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COMPARATIVE STUDY OF AGNIKARMA AND JALAUKAVACHARAN IN PAIN MANAGEMENT-CLINICAL STUDY

***J.K. Choubey **S.C.Varshney ** D.N. Pande**

Abstract: Anushastra Karma are mentioned in Ayurveda for the management of painful condition like Aamavata, Kativata, Sandhivata, etc. Keeping in view the references and the scattered work, a thorough study was planned to evaluate Agnikarma and Jalaukavacharan for the management of Janoo Sandhi Shool (knee joint pain).For this study 20 patients were selected in two groups randomly divided for Agnikarma and Jalaukawacharan.

For assessment of pain, the standard scoring system was used. All the patients were assessed before treatment, after treatment and at the interval of one week after treatment.

In my study it was observed that Agnikarma is more useful and acceptable to the patients for the treatment of Janoo Sandhi Shool (knee joint pain).

Kew Words: Agnikarma, Jalaukavacharan, Pain, Shool, Vedana,Anushashastra karma.

INTRODUCTION

Besides the miraculous achievement of modern medical science, humanity is passing through a **horror of disease** and **drug phobia.**Ayurveda' the science of life is time tested science which does not require experimental evidences & its entire field to compare with modern era. Its all principles are universally applicable to each individual to have a long healthy life. Among the Ayurvedic & Surgical treatments, Agnikarma and Jalaukavacharan seems to be most effective to offer prompt relief in this disease. To justify the authenticity of this modality the concept of Sushruta reveals that Agnikarma and jalaukavacharan has more dominated efficacy than Shashtrakarma & Ksharkarma.

AIMS AND OBJECTIVES

The study has been undertaken to fulfill the following aims and objectives:-

- To explore the literature regarding Agni Karma and Jalauka Avacharan in Ayurvedic and modern text.

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- To evaluate the importance of Agni Karma and Jalauka Avacharan.
- To establish whether Agni Karma and Jalauka Avacharan are suitable conservative treatment for pain management.
- To make a comparative study of efficacy of Agni Karma and Jalauka Avacharan in pain management.
- 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 and Jalauka Avacharan which are not mentioned in ancient classics.
- To standardize an Ayurvedic line of treatment which may prove effective in the management of the pain.

CLINICAL STUDY

The study has been carried out exclusively clinically on 20 patients. The patients were divided randomly in two groups.

Group A	-	Agnikarma	-	10 patients
Group B	-	Jalaukavacharan	-	10 patients

SELECTION OF PATIENT

Inclusion criteria

: Patients having typical clinical features and 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,
: 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 sign 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

1. Pain (Ruja)

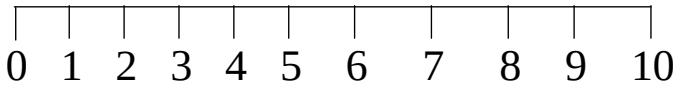
A) Visual Analogue scale – 0 to 10

0 = no pain

1 - 3 = mild pain

4 - 7 = moderate pain

8 - 10 = severe pain



2. Pricking sensation (Toda)

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

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

1. GROUPING OF PATIENTS-

Table 1a. The number of patients and nature of treatment in the selected two groups-

Groups	No. of Patients	Treatment
Group A (Agnikarma)	10	Agni Karma – on most tender and painful part of the body. Exercise – simple exercise of affected joint for a few min. at a time but several times a day.
Group B (Jalauka Avacharan)	10	Jalauka Avacharan – on most tender, painful and inflamed part of the body. Exercise – simple exercise of affected joint for a few min. at a time but several times a day.

2. AGE, WEIGHT AND HEIGHT

Table 2a: 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
A (Agni Karma)		50.50 ± 9.32	60.20 ± 6.27	158.00 ± 8.17
B (Jalauka Avacharan)		46.40 ± 9.81	55.90 ± 4.98	159.20 ± 7.25
Comparison between groups unpaired 't' test	t value	0.97	1.70	0.35
	p-value	> 0.05	> 0.05	> 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.

3. EFFECT ON VISUAL ANALOGUE SCALE (VAS) -

Table 3a:

GROUP		VAS	
		Before Treatment **Mean ± SD**	**After treatment** **Mean ± SD**
GROUP A (Agnikarma)		7.10±0.74	4.00±0.67
GROUP B (Jalauka Avacharan)		7.60±0.97	5.00±1.63
Comparison between groups unpaired 't' test	t value	1.30	1.79
	p-value	> 0.05	> 0.05
REMARK		NS	NS

The above statistical comparison represents that difference in mean of visual analogue scale between group A (Agnikarma) and group B (Jalauka Avacharan) at corresponding timings are statistically insignificant.

Table 3b:

GROUP		GROUP A (Agni Karma)	GROUP B (Jalauka Avacharan)
VAS Before Treatment Mean ± SD		7.10±0.74	7.60±0.97
VAS After treatment Mean ± SD		4.00±0.67	5.00±1.63
Comparison within the group	t value	11.20	5.46
	p-value	< 0.05	< 0.05
REMARK		S	S

From Table 3b it is observed that changes in visual analogue scale is significant in both groups observed at before treatment vs. after treatment.

4. EFFECT ON KARNOFSKY SCALE (KSKY) -

Table 4a:

GROUP		KARNOFSKY SCALE	
		Before Treatment **Mean ± SD**	**After Treatment** **Mean ± SD**
GROUP A (Agnikarma)		0.50±0.53	0.10±0.32
GROUP B (Jalauka Avacharan)		0.40±0.52	0.20±0.42
Comparison between groups unpaired 't' test	t value	0.43	0.60
	p-value	> 0.05	> 0.05
REMARK		NS	NS

The above statistical comparison represents that difference in mean of Karnofsky pain scale between group A (Agnikarma) and group B (Jalauka Avacharan) at corresponding timings are statistically insignificant.

Table 4b:

GROUP		GROUP A (Agnikarma)	GROUP B (Jalauka Avacharan)
KSKY Before Treatment Mean ± SD		0.50±0.53	0.40±0.52
KSKY After treatment Mean ± SD		0.10±0.32	0.20±0.42
Comparison within the group	t value	2.45	1.50
	p-value	< 0.05	> 0.05
REMARK		S	NS

From Table 4b it is observed that changes in Karnofsky pain scale is significant in group A (Agnikarma) and insignificant in group B (Jalauka Avacharan) before treatment vs. after treatment.

5. EFFECT ON PRICKING SENSATION

Table 5a:

GROUP		PRICKING SENSATION	
		Before Treatment Mean ± SD	After treatment Mean ± SD
GROUP A (Agnikarma)		2.50±0.53	0.90±0.74
GROUP B (Jalauka Avacharan)		2.90±0.57	1.20±0.79
Comparison between groups unpaired 't' test	t value	1.63	0.88
	p-value	> 0.05	> 0.05
REMARK		NS	NS

The above statistical comparison represents that difference in mean of pricking scale between group A (Agnikarma) and group B (Jalauka Avacharan) at corresponding timings are statistically insignificant.

Table 5:

GROUP		GROUP A (Agnikarma)	GROUP B (Jalauka Avacharan)
Before Treatment Mean ± SD		2.50±0.53	2.90±0.57
After treatment Mean ± SD		0.90±0.74	1.20±0.79
Comparison within the group	t value	4.70	5.67
	p-value	< 0.05	< 0.05
REMARK		S	S

From Table 5b it is observed that changes in pricking sensation is significant in both groups observed at before treatment vs. after treatment.

6. EFFECT ON PAIN RADIATION

Table 6a:

GROUP		Pain Radiation	
		Before Treatment Mean ± SD	After treatment Mean ± SD
GROUP A (Agnikarma)		3.10±1.16	1.60±0.97
GROUP B (Jalauka Avacharan)		3.10±1.19	1.60±0.97
Comparison between groups unpaired 't' test	t value	0.19	0.00
	p-value	> 0.05	> 0.05
REMARK		NS	NS

The above statistical comparison represents that difference in mean of radiation of pain sensation between group A (Agnikarma) and group B (Jalauka Avacharan) at corresponding timings are statistically insignificant.

Table 6b:

GROUP		GROUP A (Agnikarma)	GROUP B (Jalauka Avacharan)
Before Treatment Mean ± SD		3.10±1.16	3.10±1.19
After treatment Mean ± SD		1.60±0.97	1.60±0.97
Comparison within the group	t value	5.25	5.58
	p-value	< 0.05	< 0.05
REMARK		S	S

From Table 6b it is observed that changes in radiation of pain is significant in both groups observed at before treatment vs. after treatment.

7. EFFECT ON TENDERNESS

Table 7a:

GROUP		Tenderness	
		Before Treatment Mean ± SD	**After treatment Mean ± SD**
GROUP A (Agnikarma)		1.60±0.52	0.70±0.48
GROUP B (Jalauka Avacharan)		2.00±0.47	0.80±0.42
Comparison between groups unpaired 't' test	t value	1.81	0.49
	p-value	> 0.05	> 0.05
REMARK		NS	NS

The above statistical comparison represents that difference in mean of tenderness scale between group A (Agnikarma) and group B (Jalauka Avacharan) at corresponding timings are statistically insignificant.

Table 7b:

GROUP		GROUP A (Agnikarma)	GROUP B (Jalauka Avacharan)
Before Treatment Mean ± SD		1.60±0.52	2.00±0.47
After treatment Mean ± SD		0.70±0.48	0.80±0.42
Comparison within the group	t value	3.86	6.00
	p-value	< 0.05	< 0.05
REMARK		S	S

From Table 7b it is observed that changes in tenderness is significant in both groups observed at before treatment vs. after treatment.

Conclusion

- *The procedures* have *Vedanahar* (analgesic) and *Shothahar* (anti-inflammatory) properties.
- Having shool-prashaman and disease modifying properties.
- Having a simple modality of treatment with minimum complication, which can be managed easily.
- Having no any significant side effects.
- Having no any alteration in pulse rate, respiratory rate and oxygen saturation during the whole course of the clinical study.
- Number of sitting depends upon the chronicity and severity of disease.
- Further, a more detailed study on a large number of samples is required to evaluate biochemical and neurological changes during and after procedure.

References:

- Charaka Samhita with Ayurveda Dipika by Chakrapani, Chaukhambha Sanskrit Samsthana, Varanasi.
- Charaka Samhita, edited and published by Shri Gulabkunvarba Ayurved society, Vol. I – VI, Jamnagar, 1949.
- Sushruta Samhita with Nibandhu Sangraha and Nirnaya Chandrika, Chaukhambha Orientalia, 2002.
- Ashtanga Hridaya with Sarvanga Sundara by Arundatta and Ayurveda Rasayana by Hemadri : Edited by Hari Sadashiva Shastri Paradakara, Chaukhambha, Varanasi, 6th edi. 1939.
- Ashtanga Sangraha with commentary by Indu : Edited by Vd. Ananada Damodara Athavale, 1980, Delhi
- Madhava Nidana with Madhukosha edited by Yadunandana Upadhyaya, Chaukhambha, Varanasi.
- Sharangadhara Samhita : Krishnadas Academy, Varanasi, 1985
- Sharangadhara Samhita, Dipika Tika along with Gudhartha Dipika Tika, Nirnaya Sagar Mumbai – 1853.
- Bhavaprakasha – Uttarardha, Vidhyotini Tika, Chaukhambha Sanskrit series, Varanasi, 1949.
- Bhavamishra : Bhavaprakasha edited by Bhramashankar Shastri, Chaukhambha Sanskrit Series, Varanasi (1984).
- Madhava Nidana with Madhukosha edited by Yadunandana Upadhyaya, Chaukhambha, Varanasi.

Radio imaging modalities in Fistula in Ano

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Abstract – Fistula in ano is a disease which has been described as a problematic disease due to its recurrent nature. Recurrence of the disease takes place due to incomplete/incorrect mapping of fistulous external or internal opening, number of external openings, tracks, branching and cavity. Correct mapping may be achieved by different radiodiagnosis and imaging modalities.

Key word- Fistula in Ano, Fistulography , CTscan , MRI , Ultrasonogram

Introduction-Fistula-in-ano- A track lined by granulation tissue, which connects deeply in the anal canal or rectum and superficially on skin around the anus .The common cause is- anorectal abscess bursts spontaneously or drained inadequately . Peri anal fistulas and abscesses are among the most serious manifestations of Crohn's disease and non-Crohn's related anorectal disease.

Complications can lead to difficulties with recurrent or non-healing fistulas or abscesses.

In addition, these patients are at risk of incontinence as a result of the destructive nature of the fistulizing process and/or inadvertent damage to the anal sphincters during surgical exploration.

Types of Fistula in ano-

Low anal and high anal types.

According to Sir Alan Parks- Intersphincteric, Trans-sphincteric , Suprasphincteric, Extrasphincteric.

According to Sushruta Bhagandara is of five verities - Shataponaka (Vata), Ustragreeva (Pitta), Parisravi (Kapha), Shambuka (Sannipata), Unmargi (Agantuka).

Diagnosis of Fistula in Ano - Accurate diagnosis of Fistula in Ano, is the key to good surgical practice. Communication between clinician and radiologist is vital for each to understand the problem, as well as strength and weaknesses of the selected imaging test . It is generally good practice to perform the simplest and least expensive test first.

Choice of diagnostic technique –

- Availability of technique
- Economy of technique
- Accuracy of technique

Radio Imaging techniques-

- Conventional radiology
- Ultrasonography
- Computerized tomography
- Magnetic resonance imaging

Importance of Radio Imaging - The inability of the clinician to directly visualize the fistula or abscess makes it difficult to assess the lesions. Physical examination is more problematic by the indurations and inflammation that is usually present in these patients. The risk of incomplete healing, a recurrent fistula, or even inadvertent sphincter injury is increased if fistula anatomy is incorrectly delineated or an occult abscess missed. Radiodiagnosis & Imaging helps to resolve the uncertainties of diagnosis based on physical signs and clinical judgments.

Expectations - This is especially true with fistulae that involve a significant portion of the anal sphincter complex. Such patients are at the greatest risk of developing incontinence from the destructive fistulizing process or from overly aggressive surgical treatment.An imaging modality should ideally provide a virtual road map that the surgeon/physician can use to plan therapy.

Imaging techniques for fistula in Ano-

Available Modalities-

Plain and contrast X-rays, CT scan, MRI,

D2 or D3 Endo-anal/rectal USG & Transcutaneous Peri anal USG.

Plain X-Rays-Plain pelvic, spinal and chest radiographs are taken to exclude the other pathological conditions like osteomyelitis and tuberculosis of chest and bone etc.

CT Imaging-

Computed tomography, performed with rectally and intravenously administered contrast media, also showed some early promise . However, the attenuation values for the sphincters, levator ani, fibrotic fistulous tracks, and active fistulas are so similar that it is difficult to characterize these structures accurately, unless the track contains gas , fiuid or contrast material.

CT probably limited to the diagnosis of fistula-associated pelvic abscesses where other imaging is unavailable or cannot be tolerated.

MR Imaging-

The role of MR imaging in the diagnosis of perianal fistulas and their complications is emerging. The MR imaging shows greater concordance with surgical findings than does any other imaging evaluation. Many different MR imaging techniques (sequences like T_1, T_2, STIR, SPIR etc.) have been used .Combined application of MRI Endoanal receiver coil and high tesla transabdominal MR Imaging is gold standard in diagnosis of fistula in ano.

MR imaging in the coronal and axial planes demonstrates fistulous tracks in relation to the –

1. sphincter complex
2. ischiorectal fossa and
3. levator plate.

Imaging in the sagital and oblique planes is helpful in selected cases eg, anovaginal or presacral disease.

Disadvantages- expensive, time consuming, needs specialized equipments, less feasible for follow up and anorectal tumor staging.

Ultrasonography -

1-Transcutaneous peri anal ultrasonography-

Able to detect primary and secondary tracts their course and extent even in blocked tracts which cannot be evaluated by fistulography . Muscle mobility, levator ani and external sphincter can be evaluated. Suprasphincteric type can be identified easily. It allows good detection of perianal abscesses. Can be performed in anal stenosis and in perianal inflammatory conditions (cf. endoanal USG).

Disadvantages- differentiation between external and internal sphincter and intersphincteric collection are quite poor.

2.Endoana l/Endorectal ultrasonography-

Gives accurate definition of muscular anatomy . Supra sphincteric extension may be evaluated. But internal opening likely to be missed . It does not allow imaging of gluteal region. But difficult to perform in perianal inflammatory condition . Infection cannot be distinguished from fibrosis with this technique.H_2O_2 contrast endoanal ultrasonography is the answer of this problem. Insufficient depth penetration results in a failure to identify secondary ramifications and more distant sepsis .It may resolve by use of 6- 16 MHz and 360^0 image mode ultrasonography endoanal/rectal transducer. It is superior than MRI for ano rectal tomour staging.

2D and 3D anorectal endosonography has proved its usefulness, and today medical specialists within such areas as pelvic floor imaging , coloproctology, colorectal surgery , incontinence, and uro-gynecology are frequently used it.

3D anorectal endosonography in volume render mode extends the usefulness of anal endosonography. The data from a series of closely-spaced two-dimensional images is combined to create a 3D image that can be freely rotated and sliced to allow the operator to get the most information out of the data – while not under the time pressure of the examination itself.

After a data set is acquired, it is immediately possible to select coronal, anterior-posterior (A-P)or posterior-anterior (P-A) as well as sagittal rightleft (R-L) views (Fig 1). Coronal and oblique views are also available to the examiner. It is possible to see the invasion of a rectal tumor, the type of a fistula, and the extent of anal sphincter damage. Today ultrasound is the gold standard when investigating fecal incontinence.

Sinogram/Fistulogram - Fistulogram/sinogram is a technique in which radio-opaque contrast agent is injected in the fistulous/ sinus tract and serial radiographs are taken.

Limitations of sonogram –

-Fistulography is the most traditional radiologic techniques used to define the anatomy of fistulae.

- However, it is also the most unreliable and difficult to interpret. Because the sphincter complex is not directly visualized, its position and that of the levator ani sling must be inferred.

-Thus, it is difficult to distinguish, for example, between an abscess high in the ischiorectal fossa and one low in the supralevator para rectal space.

- Secondary fistulous tracks often fail to fill with contrast material.

- Level of the internal opening in the anal canal is difficult to visualize because of the absence of precise anatomic landmarks.

Advantages of Fistulogram –

- Fistula/Sinus communicating to other organs.
- Fistula/Sinus with ramifications and cavitations.
- High anal fistulae.
- Fistulae with multiple openings.
- Blind external fistulae.
- Fistulae extending to thigh.
- Fistulae with gluteal extension.
- Fistulae with deep superior and posterior extension.
- Anatomical relations of fistulous track can be established.
- Internal opening can be identified.

Disadvantages of Fistulogram –

- Post sinogram cellulites and abscess.
- Contrast may enter in vessels.
- Outside leakage of contrast during sinogram.
- False image formation during inactive phase of sinus/fistula and in low anal fistulae.
- Inadequate information in cases of multiple openings.
- Radiation hazards to the operator and patients.

Conclusion –

The objectives of performing and interpreting any imaging study for peri anal fistulae are:

1) To determine the relationship of any fistulous track to the sphincter complex-

- Is the sphincter involved?
- Does the track traverse both layers of the sphincter (trans-sphincteric) ? or
-Only the in-between sphincters (intersphincteric)?

2) To identify any secondary fistulous tracks and the sites of any abscess cavities.

Failure to detect and eradicate these may lead to recurrence and thus therapeutic failure.

- Secondary tracks or ramifications may be found within the intersphincteric plane, the ischiorectal fossa, or the supralevator space.
-"Horseshoe" tracks may pass circumferentially in these planes and may cross the midline.

3) Sinogram/fistulogram is important investigative procedure for mapping of complicated sinuses/fistulae specially in active phase of illness (air in fistulous tract and increased vascularity are reliable sign of active fistula) done by technique adopted by Prof. Deshpande Fistulogram techniques is not very useful in inactive stage of Fistula in ano, so it has to be done with prior "kshar-varti" application.

4) MRI and Endoanal/Transcutaneous perianal ultrasonography are claimed to be more accurate for diagnosis of sinuses/fistulae but are costly and needs specialized equipments.

In Nutshell –

MR Imaging (with application of high tesla and endoanal receiver MRI coil) and 3D - endoanal / endorectal ultrasonography is gold standard techniques for the diagnosis of fistula in ano .

Fistulography (done by Prof. Deshpande technique, with clinical support) is easily available, cost effective and standard in accuracy.

References –

A C Peon et al- Hydrogen Peroxide – enhancedtransanal ultrasound in assessment of fistula in ano, British Journal of surgery , 1996.

Dwivedi A K –Diagnostic modalities and problem of diagnosis in fistula in ano, ROTP in kshar sutra, 2008

Das NP – Radiological diagnosis, evaluation & assessment of Fistulous track, ROTP in kshar sutra , 2008

Endographic criteria for an internal opening of fistula in ano, Dis. Colon and rectum, 1999

Gulgun Engin - Endosonographic Imaging of Anorectal Diseases, J Ultrasound Med 25:57-73 • 0278-4297, 2006

I J Beckingham et al-Prospective evaluation of dynamic contrast enhanced MRI in the evaluation of fistula in ano, British journal of surgery, 1996

Peter J Lunniss et al – Magnetic resonance imaging of Fistula in ano , Dis. Colon Rectum, July 1994 , vol.37, No.7

S Elagovan et al- comperative study of fistulography and anal endosonography in fistula in ano, Indian journal of Radiology and imaging, 2002.

S Halligan , J C Healy, C I Bartram – Magnetic resonance imaging of fistula in ano-STIR or SPIR

Steve Halligan,Jaap Stoker- Imaging of Fistula in ano, Radiology, 2006,239,18-33

Sushruta Samhita- Dalhan commentary, edited by Yadav ji trikrim ji achaya, Chaukhambha surbharti prakashan, Varanasi, 1994

Yung Kim , Young Jin Park - Three-dimensional endoanal ultrasonographic assessment of an anal fistula with and without H_2O_2 enhancement, World Journal of Gastroenterology, 2009, 15(38)4810-15

3-D Anorectal Ultrasound, application note, BK Medical, 2009

Role of Kadamba (Anthocephalus indicus) In Post Operative Pain Management under Spinal Anaesthesia

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Abstract-Pain is an extraordinarily complex sensation which is difficult to define and equally difficult to measure in an accurate, objective manner. It has been defined as the sensory appreciation of afferent nociceptive stimulation which elicits an automatic component; both are subjected to rational interpretation by the patient.

As a matter of fact revolutionary advancement in the field of surgical discipline has become possible only because of effective and excellent perioperative and postoperative pain management. No doubt newer researches in pharmacology have added many anti-inflammatory and analgesics but they have certain limitations and ill iffects.

Keeping in view these problems a thorough search was made in text of Ayurveda,which can minimize untoward effects of commonly used analgesics as premedicants. A large number of indigenous drugs viz .Rasna, Eranda, Nirgundi, Parijata, Padmaka and Nirgundi etc. mentioned in Ayurvedic literature have experimentally and clinically proved their analgesic and anti-inflammatory actions. The encouraging results of these studies prompted us to work on a well known Vednasthapaka drug- Kadamba (Anthocephalus indicus) to evaluate its analgesic and anti-inflammatory properties in practice of Sangyaharan as premedicant.

For the present clinical study 40 patients were selected from Sangyaharan OPD of ASA grade –I &II posted for various surgical operations under LSAB viz- Herniotomy with Herniorraphy, Hernioplasty, B.L.T.L., Skin grafting below umbilicus , Scrotoplasty, Peniloplasty, Hystrectomy, Primary threading in fistula in ano, Haemorrhoidectomy, appendectomy, Prostactomy and Pilonidal sinus .The Trial drug Kadamba in the form of Ghanvati showed almost equally effective anti-inflammatory and analgesic action in comparison to control drug Diclofenac sodium (50 mg).

Keywords-Pain, Vedanahara, Sothahara, Doshas, Vedanasthapak, Padmak, Premedication, Spinal Anesthesia.

Introduction-

Management of pain during and after surgical procedures has always been a challenging task to an anesthesiologists and hence the search of an effective and safe analgesic and anti-inflammatory drug is going on since the origin of pain. Sangyaharan (Anesthesiology), the science based on the knowledge of Pharmacology, Biochemistry, Physiology, Biotechnology and Medicine and lastly the surgery. It is a science of natural phenomena, dealing with measurable, 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 and anti-inflammatory action of some medicinal plants and indigenous compounds. In the present research work an indigenous drug Kadamba (Anthocephalus indicus) was selected to evaluated for its efficacy as an anti-inflammatory and analgesic, in the post operative pain management under Lumber subarachnoid block.

The trial drug Kadamba was used in the form of Ghanvati (tablet of dried decoction of bark of kadamba) and its Vedanahar (analgesic) and Shothhar (anti-inflammatory) properties were compared with Diclofenac sodium when used as premedicant.

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Materials and Methods-

In the present clinical study 40 patients were selected from Sangyaharan OPD of ASA grade –I &II posted for various surgical operations under LSAB viz- Herniotomy with Herniorraphy, Hernioplasty, B.L.T.L., Skin grafting, scrotoplasty, peniloplasty, Hystrectomy, Primary threading, Haemorrhoidectomy,appendectomy, Prostactomy and Pilonidal sinus.

Evaluation of response of our drugs as a premedicant was assessed on following parameters-

Evaluation of psychological effects on the patient.

Effects on the course of subsequent anaesthesia.

Effects on post-operative recovery period.

Requirement of 1st analgesic dose in post-operative period

Collection & Preparation of Drugs -

The stem bark of Kadamba (Anthocephalus indicus) was collected from Ayurvedic Pharmacy, Institute of Medical Sciences, Banaras Hindu University, Varanasi and after confirming its validity by Dravya Guna department. The Ghansatva of Kadamba bark was prepared in Ayurvedic Pharmacy, I.M.S., BHU, Varanasi with the standard preparatory methods as mentioned in the texts of Ayurveda.

The yield of prepared semisolid Ghansatva was weighed and dose was calculated as per text. For medication facilities of the present research work drug was formulated in the form of vati (Tablets of 500mg each) . The dose of Kadamba Ghanavati was calculated accordingly and fixed as one gram (Two Tablets) for the present clinical study.

Disintegration Time:

The disintegration time of the prepared tablet at 370C of water was observed in the disintegration time machine. The time required for complete disintegration of tablet was found 34 minute. The Kadamb ghan vatiwas expected to dissolve in the stomach within their disintegration time.

Selection of the Patients -

Forty patients of either sex of A.S.A (American Society of Anaesthesiologists) grade I and II posted for Herniactomy with Herniorhaphy, Skin grafting below umbilicus, Primary threading in fistula in ano, Haemorrhoidectomy, Prostactomy and Pilonidal sinus were selected from the Department of Shalya Tantra and Prasuti Tantra attending Sangyaharan OPD for PAC, S.S. Hospital, Institute of Medical Sciences, Banaras Hindu University were selected for present clinical trial.

The patients, selected were of standard population i.e. narrow age, weight, height differences and similar physique. The patients were examined before giving premedication to ensure any pre-existing pathological disorder which could influence the various parameter of this study. All patients were given Lumber-Subarachnoid block (LSAB). The patients with deformities of spinal card, neurological and mental disturbances, hepatic diseases, renal diseases, cardiovascular diseases, hypersensitive to local anesthetics and Diclofenace sodium and with local infection were excluded from the study. The study was conducted after proper written consent of individual patients explaining the methodology and aim of the study.

Grouping of Patients :

The 40 selected patients were randomly divided into two equal groups of 20 patients in each .Patients of group I were considered as Control group and patients of group II were as Trial group.

Group I – The patients of group I (control group) received injection Glycopyrrolate 0.2 mg I.M. 90 mins. before operation and 1 tablet of Diclofenace sodium (50 mg)at 10 p.m. of previous night and 90 mins before operation with an ounce of plain water.
Group II – The patients of group II (trial group) received injection Glycopyrrolate 0.2 mg I.M. 90 mins before operation and two tablets (1gm) of Kadamb ghan vatiat 10 p.m. of previous night and 90 mins before operation with an ounce of plain water.

After proper antiseptic dressing and draping of the Lumber Lumber puncture was done in all the cases inj. bupivacaine 0.5% (heavy) 2.5 ml was administered.

All the data collected Viz. – Age, weight, blood pressure, pulse rate, respiratory rate, oral temperature, oxygen saturation, end tidal carbon dioxide, total surgical time, and total duration of anaesthesia, desirable and undesirable effect. First analgesic dose requirement time, 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 unpaired t-test, t-value, 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 presented in graphical way.

Observation and Result-

1. **Age, Weight And Height :**

Table: 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 I / Control		41.75 ± 12.63	57.55 ± 7.02	164.80 ± 3.82
Group II / Trial		38.80 ± 15.30	54.50 ± 6.04	164.60 ± 4.76
Comparison between groups unpaired 't' test	T value	t = 0.66	t = 1.47	t = 0.15
	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 were statistically comparable and identical (p > 0.05) in the patients of both the groups.

2. Effect on Blood Pressure:

The statistical comparison of difference in mean of mean blood pressure (mm Hg) between the groups at corresponding time i.e. before premedication (W), after premedication (X), during subsequent anaesthesia (Y) and after recovery from anaesthesia (Z), by applying student t-test, p-values between groupI and groupII at corresponding four different timings were statistically insignificant.

However within the groups, difference of MBP before premedication vs after premedication, before premedication vs after recovery from anaesthesia in both groups was insignificant but difference of MBP before premedication vs during subsequent anaesthesia was significant in both the groups.

3. Effect on Pulse Rate -

It was observed that difference of mean pulse rate at corresponding four different timings of the study was identical and insignificant statistically, between group- I and group- II.

However it was observed that difference of mean pulse rate, at the level of before premedication and after premedication was significant in group-I and also in group-II and difference of mean pulse rate before premedication and during subsequent anaesthesia and after recovery from anaesthesia was Insignificant in group- I and group-II.

4. Effect on Respiratory Rate-

It was observed that difference of mean respiratory rate per minute when compared in between group- I and group- II at corresponding four different timings, it was statistically insignificant and identical.

However it was observed that changes in respiratory rate are insignificant in both groups at the levels of before premedication vs. after premedication, before premedication vs. during subsequent anaesthesia and before premedication vs. After recovery from anaesthesia.

5.Effect on Temperature -

It was observed that difference of mean Axillary temperature (^oF), when compared between group- I and group- II at corresponding four different timings it was statistically insignificant.

When comparison is done for mean Axillary temperature (^oF), within the both groups at the level of before premedication with after premedication was significant and difference of mean temperature before premedication and during subsequent anaesthesia and after recovery from anaesthesia was Insignificant in group -I and group-II

6.Effect on Oxygen Saturation-

It was observed that difference of mean SPO2 percentage when compared between group- I and group-II at corresponding four different timings it was insignificant.

However it was observed that difference of SPO_2 percentage at the level of before premedication and after premedication is insignificant in group- I and also in group- II and difference of mean SPO_2 before premedication, during subsequent anaesthesia and after recovery from of anaesthesia was insignificant in both group.

7. Effect on mean $ETCO_2$ (mmHg)-

It was observed that difference of mean $ETCO_2$ (mmHg) when compared in between group- I and group- II at corresponding four different timings it was insignificant.

It was observed that difference of mean $ETCO_2$ (mmHg), at the level of before premedication and after premedication and before premedication, during subsequent anaesthesia and before premedication and after recovery from anaesthesia was insignificant in group I- and group- AII.

8.Desirable Effects And Undesirable Effects-

The comparison between the group-I and group-II regarding sedation, apprehension and excitement was statistically insignificant.

The statistical comparison of undesirable effects like dizziness, nausea, vomiting, in between group-I and group-II at the level of after premedication was insignificant.

9.Surgical Time And Duration of Anaesthesia -

Table: Mean surgical time and mean duration of anaesthesia in group-I and group-II (expressed in minutes) were as follows.

Parameters	Group-I (Control) (Mean ± SD)	Group-II (Trial) (Mean ± SD)	t-value	p-value	Remarks
Total Surgical Time (min)	40.50 ± 24.65	40.25 ± 18.09	t = 0.04	>0.05	NS
Duration of Anaesthesia (min)	133.50 ± 5.64	132.75 ± 7.8	t = 0.35	>0.05	NS

Mean surgical time in group-I and group-II expressed in minutes were 40.50 ± 24.65 and 40.25 ± 18.09, respectively. The statistical comparison between the groups was insignificant.

Mean duration of anaesthesia in minutes in group-I andA II were 133.50 ± 5.64 and 132.75 ± 7.8 respectively. The statistical comparison between the groups was found to be insignificant.

10. Post Anaesthetic Sequel-

Nausea: Incidence of nausea in group I (control) was 10% and in groupII (trial) was 5% which was also statistically insignificant.

Headache: Incidence of headache in group- I (control) was 10% and in group- II (trial) it was 5%. On statistical comparison, incidence of headache was insignificant.

Backache: The incidence of backache was 3 in group-I, i.e. 15% and in group-II it was i.e. 15%.Statistically they are equal and identical.

Sedation, vomiting, dizziness, dyspepsia, gastric irritation, increased peristalsis, haematemesis, malena, precipitation of asthma, respiratory depression and other side effects were noted meticulously in both groups and was found to be absent in all the groups.

11. Requirement Time of 1st Dose Of Analgesic-

Table:

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

Groups	Mean ± SD	t-value	p-value	Remark
Control Group - I	214.74 ± 17.75	t = -1.92	p > 0.05	NS
Trial Group - II	228.33± 24.97			

It is obvious from the above table that requirement of the first dose analgesic time in patients of both the groups was almost equal and identical time intervals the statistical comparison of first dose analgesic requirement time between the groups was insignificant.

Summury and conclusion-

On the basis of the above observations made on patients operated under lumbar subarachnoid block, this can be concluded-
The trial drug Kadamba in the form of Ghanvati has Vedanahar (analgesic) and Shothahar (anti-inflammatory) properties most like tab. Diclofenace sodium used as premedicant.

Kadamba Ghanvati 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, oxygen saturation and End tidal carbon dioxide during the whole course of the clinical study.

The trial drug Kadamba in the form of Ghanvati is almost equally effective anti-inflammatory and analgesic in comparison to control drug Diclofenace sodium (50 mg).

Further, a more detailed study on a large number of samples is required to evaluate analgesic and anti-inflammatory properties and unfold other properties of trial drug used as premedicant.

References-

1. Maurya B. N. Evaluation of Shigruguggulu in Sangyaharan as Vednahar (pain relieving) thesis of M.S. (Ay) Sangyaharan December 2004, IMS BHU, VARANASI.
2. Medhi Champak, Pande D.N., Evaluation of Shigru in Sangyaharan as Preanaesthetic agent. (2003) , IMS, BHU, VARANASI.
3. Mishra P.R., Guggulu in the management of post-operative pain, M.S. (Ay.) Sangyaharan Thesis 1998 I.M.S., B.H.U., VARANASI.
4. 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.
5.Mishra S.K., Pande D.N., Evaluation of vaca as Premedicant.,MD Thesis.(1998) IMS BHU,VARANASI.
6. Mokoon lal Anand : Role of Narcotics and local Anaesthesia M.D. thesis (March1992)I.M.S., B.H.U.,VARANASI.
7. Mukhopadhyay B.N. Role of Shobhanjan in the management of granular conjunctivitis (Trachoma) .MD Thesis (1987), I.M.S., BHU ,VARANASI.
8.Pai A. et. al Evaluation of Rasna as premedicant under Sarvadaihik Sangyaharan. MD.Thesis (1999) IMS, BHU, VARANASI.
9. Pande D.N. , Poorvakarama in relation to anaesthesia, M.D. (Ay.) Thesis, (1986), IMS, BHU, VARANASI.
10. Pande S.B., Evaluation of Aswagandha as Preanaesthetic agent. Ph.D. (Ay.) Thesis, (1977), IMS, BHU, VARANASI.
11. Pandey K.K., Role of Medhya Dravyas in Snagyaharan Ph.D. Thesis, (1990). IMS, BHU, VARANASI.

12. Pandey P.S. et.al Studies on an indigenous compound (Nirgundi, Erandmool and Bhringaraja) as an analgesic. M.S. (Ay.) Sangyaharan thesis 1997. IMS, BHU, VARANASI.
13. Roy A.K. Role of Shigrughanasatva under Sarvadaihik sangyaharan (GA): a clinical study. M.S. (Ay.) Sangyaharan Thesis 2005 I.M.S., B.H.U., VARANASI.
14. Sah G. S., Study of Parijat in Post Operative Pain under Sub-arachnoid Block. (1998)
15.Shakuntala D.A.R. et al., Studies on water extract of Ashwagandha as Premdicant in epidural anaesthesia –MD Thesis 1997. IMS, BHU, VARANASI.
16.Sharma P.K. et al. Evaluation of Jatamansi as Pre anaesthetic medication A-biochemical study – MD Thesis 1997. IMS, BHU, VARANASI
17.Sharma P.V. – Classical usage of medicinal plant, Chaukhamba Prakasan. 1996
18.Sharma P.V., Dravyaguna vigyana Parts II , Chowkhambha Prakashan, Varanasi. (1975),
19. Singh A.K. Effect of Triphalaguggulu in diabetic retinopathy1998
20.Singh H.O. et al, Evaluation of Triphala guggulu in Post Operative Pain managements. (2000) IMS, BHU, VARANASI
21. Singh R.H. and Malviya P.C. , Antipyretic, Analgesic and anti-inflammatory effects of Ashwagandha. J. Res. Med. Yoga Homeo. 13(1): 15-24. (1977).
22. Singh Rajesh et al., Biochemical studied of Parijat Ghansatva during and after intrathecal Anaesthesia. MD Thesis 2003,IMS,BHU, VARANASI.
23. Singh S.K. et al., Study of Parijat as Premedicant under Sarvadaihik Sangyaharan. MD Thesis 1999 . IMS,BHU, VARANASI.