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EDITORIAL
Malviya Vision Regarding Medical Education

- **Malviya Ji dreamed a medical system including all the modern advances with wisdom of our heritage and established Ayurved College in the campus of BANARAS HINDU UNIVERSITY. He realized about the Global need of Integration of knowledge in the entire speciality. He was the visionary who established-(Prachi and Pratichi ka meil)-Integration of Ayurvedic system with modern medicine.This was his Global Commitment and Open mind which created a space for Global acceptance of Ayurved. Now a Global regulatory body is need of the day to regulate all the systems in the world.**

- **I appeal to all the Government of democratic world to create a single platform for all the medical systems.**

- **I hope that in 21st century our courses curriculum will be so advance and updated that our own postgraduate will take up the most super specialized field like Neurology/Neurosurgery/Cardiothoracic surgery etc. We have to strengthen Ayurveda in such a way that our country would have only one system Ayurved. All the other system is incorporated in Ayurved. It does not mean that Ayurved will disappear but it will remain alive with its own holistic approach and lead the world in the field of health.**

-

Jai Hind **Jai Ayurved** **Jai Sangyaharan**

Devendra Nath Pande
Chief Editor

A MUSCULO-SKELETAL PAIN MANAGEMENT - ANCIENT & RECENT TRENDS

Prof. H. K. Kushwah** * Dr. Ashok Kumar** ***** Dr. Narinder Singh**

Abstract: Pain can be either of visceral or musculoskeletal origin. Most of the pains of visceral origin require specific management. On the contrary pains with musculo-skeletal origin can be managed with variety of conservative & non interventional methods. Etiology of pain of Musculo-skeletal origin is mainly trauma or degenerative conditions. Drugs & procedures which in principle pacify Vata normalize the vitiated Vata hence alleviate pain. In context to the management of pain of musculo-skeletal origin local application of heat, complete rest, immobilization, tractions, exercises, manipulation are mentioned. These trends of management will be discussed in this paper.

Key word: musculoskeletal origin, Sudation, electrotherapy

Introduction:

Acharya Charaka has clearly mentioned that Shoola in any part of the body or in any disease is always caused by 'provoked and vitiated vata'. Pain produced in a particular part of the body, caused by the vitiated vata is generally called as 'anga shoola' related to that particular part. Acharya Sushruta and Acharya Madhav have also authenticated the same fact, in their respective texts.

Various types of medications in the form of herbal or herbo-mineral drugs & there recent alternate in the form of opioids, NSAID's TCA's muscle relexants, local-anesthetics & anticonvulsants are administered by oral topical / transdermal, I.V., regional, intra-spinal & nerve blocking techniques are in practice. In the present scenario stress is being laid upon the conservative & minimal interventional methods which can be discussed as under.

ANCIENT & RECENT TRENDS:

Local application of heat-Heat is a therapeutic modality, which was under therapeutic application for pain since ancient times. Temperature up to 41-45°C for duration of 3-30 minutes is used for therapeutic purpose

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Effects of heating

Direct

Indirect

Direct effects of Heating

1. Increased blood flow.
2. Increased metabolic activity.
3. Stimulation of neural receptors in the skin or tissue.

Indirect effects of heating induces, muscle relaxation and it also increases the efficiency of muscle contraction.

Indications of heat

- Analgesic action.
- Relieving spasticity of muscles.
- Enhancements of stretching or traction.
- Soporific effects (makes feel sleepy)

Various methods used are:

Oilation with hot medicated oils

Tail being the principle pacifier of *vata* when processed with other *dravyas* having pharmacotherapeutic properties opposite to the qualities of vata becomes more potent vata pacifier, so normalizes the vitiated vata hence alleviate pain. Medicated oils like Vishgarbha , Mahanarayan, Mahamash or bala tail etc at or around 41-45°C are used for the massage at the site of pain for duration of 3-30 min. Proper massage leads to general relaxation, improved blood circulation, muscle relaxation, flexibility, increased joint mobility, connective tissue pliability, & reduction of pain. A lot of research work is being done in this direction as Kati-basti, Janu –basti & greeva-basti etc..

Hot pack & fomentations

In this method heated stones, hot packs containing the sand or salt are used for fomentation. In Ayurvedic classics we can find references about various types of sudation techniques. Sudation by various methods is given for 10-15 min. It can be repeated for several times.

Hot Water Bottle

It is an old fashioned method of applying specialized heat to certain areas of the body. In this therapy half filled bottle with warm water is used.

Wax Therapy

Wax therapy is indicated in the cases of post traumatic/post immobilization stiffness & pain associated with the conditions like osteo-arthrosis & rheumatic arthritis. Wax usually melts down around temp. of 60ºC,but should be used around the temperature of 40ºC -45ºC.Hot wax is applied in 5-6 layers over the affected part & is allowed to cool down by itself. 60ºC -65ºC temp. have been proposed to provide a breakdown & structural changes in the collagen fibers, resulting in tissue shrinkage .This tissue shrinkage may be useful in the treatment of capsular laxity or instability of the shoulder.

Agni-karam

Role of agnikaram in management of painful conditions like tennis elbow, golfer's elbow or planter fascitis etc., as mentioned in S.Su. 12 can be well understood by counter-irritant theory & stimulation of endogenous pain inhibiting system through

- Descending pain inhibiting system.
- Gate control mechanism.
- Endogenous opioid release.

Various alternates that can be considered as the substitutes of agni-karam are;

Infrared Therapy

Two types of generators are used for therapeutic application.

- Non luminous generators provide infra red rays with the wave length of 750nm to 15,000 nm. (Maximum emission is in the region of 4000 nm) used for acute and recent type of lesions.
- Luminous generator - The wave length of infra red rays is 350nm – 4,000 nm. (Maximum emission is in the region of 1,000nm) used for chronic type of lesions.

Duration and frequency

- 10-15 min – for acute inflammation or recent injuries.
- It can be applied several times during the day.

Longer exposures may be used for chronic conditions (about 30min)

Electrotherapy

Therapy with electric current is called electrotherapy. Here electric current/electric stimulation is used for therapeutic purposes.

Type

The therapeutic currents used are divided into the following types on the basis of frequency used, which are-

- High frequency current used for its diathermic or heating effects
- Low frequency current used for stimulating nerve or muscle (TENS).

This electric current produces rise of temperature hence desired therapeutic effects as already explained.

Diathermy

It produces area of electrical field, which increases blood supply.

Increase blood circulation in deeper structures like muscle.

Local mild elevation of temperature deep within the tissues produced.

Rise of temperature in deeper structures / joints.

Short-wave Diathermy

Short-wave diathermy current has a frequency of 10^7 to 10^8Hz. But the frequency of the current used for therapeutic purposes is of (27.12 MHz)

Microwave Diathermy

Microwave Diathermy is an irradiation of tissues with energy of electromagnetic waves i.e. microwaves (wavelength of 1-100cm.).

TENS

Tens is an acronym for *Transcutaneous electrical nerve stimulation*. In this method the nerves are stimulated by electric current. The intensity of this current can be regulated and adjusted.

Electric heating Pads

This method is easy and comfortable. In this method, Electric pads of various sizes are used. The temperature produced by a heating element can be regulated by a series of resistors. The effects produced in merely superficial because heating of the tissues is done by conduction.

Laser Therapy

It is recently introduced modality. In this therapy, light energy is used in the form of LASER beam. The word LASER is for Light Amplification by Stimulated Emission of Radiation. The lower power LASER radiation is used in physiotherapy where as the higher power LASER radiation is used in surgery for cutting or welding tissues.

PMF Therapy

PMF therapy means Pulsating Magnetic Field therapy. Magneto-biology is new frontier science, where the magnetic force of physics interacts with the biological elements in living tissues. The use of magnetic field of extremely low frequency (1Hz – 10Hz) and ultra low intensities has been found to be effective. The PMF therapy can be used in the treatment of, pain of musculo-skeletal origin, R.A; O.A. and lumbar/cervical spondylosis.

Hyper Stimulation Analgesia

Hyper stimulation of nerves by Cupping, Transcutaneous Electric Nerve Stimulation, Acupuncture, Needling, Icepacks etc. causes a sedative/analgesic effect which relieves pain.

Ultrasound therapy

Ultrasounds delivered at intensity > 1W/cm2 produces a heating or thermal effect in the tissue, particularly those having high collagen contents. This type of heating results in an increased blood flow to the area. Ultrasonic waves with the frequency of 1 MHz are used to treat various musculo-skeletal conditions. The thermal effects of Ultrasonic wavesare always accompanied by mechanical effects producing the phenomenon of cavitation & Acoustic micro streaming. Stable cavitations at therapeutic intensity results in expansion & contraction of gas bubbles in the tissue leading to increase in permeability in cell membrane. Acoustic micro streaming refers to mechanical pressure that causes fluid to move across the cell membrane. Acoustic micro streaming & cavitations are reported to responsible for increased fibroblastic activity, increased protein synthesis & tissue regeneration.

Contra-Indications of heat

Acute inflammation and acute trauma

Venous obstruction

Arterial insufficiency

Hemorrhagic diathesis and Malignancy

Cryotherapy

Ice may be use for pain relief or decrease in muscle spasm which leads to enhanced joint mobilization, stretching, or strengthen the affected region. Ice application for 5 minutes is reported to lower tissue temperature in the skin by 20ºC , subcutaneous by 15ºC & muscle temperature at the depth of 2c.m by 5ºC & a depth of 4c.m by 4 ºC . Lower tissue temperature produce a decrease in metabolic rate & subsequently a decrease in demand for oxygen leading to limit the further injury in case of injuries. In regard to the muscular spasm/cramp the muscle tension is reduced by the less excitable muscle spindle by raising the threshold of its activation.

Cryokinetics

Cryokinetics is the combination of cold treatment with exercise, including strengthening and stretching exercises.Ice is applied to the affected area to produce analgesia before initiating exercise is performed when the affected area is numb. Ice is reapplied three to four times, again exercising while the area is numb.

Complete rest & immobilization

Complete rest & immobilization (if required) for 2-3 weeks is given in few cases viz. the tennis/golfer's elbow to achieve healing in concerned soft tissue.

Tractions

Intermittent mechanical tractions are advisable in conditions with chronic pain like osteoarthrosis , spondylosis & PIVD etc. with weights calculated in accordance to the body weights .

Exercises & Manipulations

Various types of stretching exercises are effective measures in the management of musculo-skeletal pains. In concern to the pain management manipulation exclusively describes maneuvers performed by the physiotherapist or skilled health professional.Manipulation includes, Joint technique to increase joint mobility in post traumatic joint stiffness & soft tissue manipulation to increase soft tissue mobility associated with musculo-skeletal injuries.

Steroids

In substitution to the oral NSAID's & steroids, cortico-steroids can be administered locally or through intra-articular route to achieve analgesia & anti-inflammation in various musculo-skeletal conditions. Benefits of localized drug delivery are parenteral route preventing upper GIT erosions & high localized concenteration producing better effects. Commonly used drugs are Tri-amcinolone acetonide, hexa-acetonide, hydro-cortisone acetate, betemethasone, alone or in combination with local anaesthatic drugs & hyluronidase etc.

Ganglion Blockade

This can be achieved either by investing local aneasthatic solutions in the regions of sympathetic truncks or by sympathectomy . Lumbar trunk sympathectomy in conditions of ishaemic pains in lower limbs (Buerger's disease) & cervical sympathectomy in upper limbs with Raynaud's condition.

Epidural Blockade

Continuous epidural anaesthesia by having catheter in epidural space in early post operative phase could an another alternate to NSAID's & opoids .Opoids when administered in the epidural space produce intense , prolonged segmental analgesia with relatively less respiratory distress or sympathetic, motor, or other sensory disturbances.It is usually administered as continuous infusion (10 mg of epidural morphine for 15-16 hours).The pain relief is much better than with IM/IV opoids.Patient managed in this manner are more alert & have much better GIT functions. The patients however have difficulty in passing urine & have to be catheterized.

The use of corticosteroids in the epidural space for short-term relief of post traumatic radicular back pain is also in practice these days.

References:

Ch. S. 17/47; 20/12; Ni 3/7; Ch. 7/34; 8/17, 31; 28/26, 27, 28

Bh. P. Ch. 30/1

Su. S. 17/12,13

Ma. Ni. 26/11

SUSHRUTA'S NADIYANTRA IN UDAR-ROG

RamanSingh* Prof.SC Varsney** Prof.V.K.Shukla**

INTRODUCTION

Sushruta is the father of surgery. Sushruta was a renowned surgeon of ancient India – 6th century BC. He lived, taught and practiced his art on the banks of Ganga in the present day city of Varanasi. (ref.:-http://opthapg.blogspot.com/2008/07/sushrutathe-father-of-surgery.html)

Naadi yantra described by Sushruta Samhita used for following purposes: roga darshanartham, aachooshanartham, kriyasaukaryartham. When we look upon various types of modern endoscopes and endoscopic procedures. It is not different from the idea and the instructions of Sushruta because they are used for various types of diagnostic and therapeutic purposes.

AIM & OBJECT

In present study, we have decided to review the Sushruta's nadi yantra and modern laparoscopes, and to study the role of nadi yantra (laparoscope) in patients suffering from abdominal diseases (uder roga).

MATERIAL & METHOD

The study was conducted in the department of Shalya Tantra, dept. of General Surgery IMS, BHU and S.L.Marvadi Hospital, Godowlia, Varanasi.

Selection of patient was made on the basis of clinical examination as per modern text and ayurvedic text and laboratory investigation.

PLAN OF STUDY

SELECTION OF CASE SHEET

Inclusion Critaria:All the cases having abdominal complaints for shool(pain), shopha(swelling), antra kunjana(flatulence), amlodgara(dyspepsia), pandu(anemia), kamala(jaundice), aruchi(anorexia), asya vairasya (changes in taste), jwara(fever), discoloration of skin-nails-stool-urine, heart burn, jalodara(ascitis), vibandha(loss of flatus and stool) was included in our study.

Exclusion Critaria: The cases which were excluded mainly the children, very old and debilitated person, patient in shock, patient of neurological problem, and suffering from heart and lung diseases, etc.

A total of 140 patients were selected for this study.

REVIEW OF NADI YANTA

Acharya Sushruta has described 20 types of nadi yantra under the heading of 101 types of yantra. (Su.soo.7/6)

They are as follows:

BHAGANDER, ARSHO, VRANA, BASTI, UTTARBASTI, MOOTRABRIDHI

DAKODAR, DHUM ,NIRUDHPRAKASH SANIRUDHGUD, ALABU-SHRING YANTRA

NAADI YANTRA DESCRIBED BY ACHARYA SUSHRUTA

Bhagandara Yantra:

Description: This is the first nadi yantra described by Acharya Sushruta and this instrument employed for the diagnosis and treatment of the bhagandara. Detailed description of the Bhagandara yantra is not given in the Samhita's but detailed description is available for the Arshoyantra because these two instruments are used for similar purposes with mild modification in the disease of anal canal. It seems that to avoid repetition the authors of the classical texts have not given the detailed description of Bhagandara yantra. That's why Acharya Sushruta [(S.CH.8/53)1] has advised to use this instrument similar to Arshoyantra.

Types: Two types

a) Eka chidra – with one slit
b) Dwi chidra – with two slits.

Size: Bhagandara yantra is four angula long. For males – four angula long with five angula circumference. For females – four angula long with six angula circumference. The longitudinal lateral slits present in the instrument are three angula long and should be completed through out the entire length of the instrument.[(S.S.7/13)(A.S.S.34/101)]

Shape: This instrument resembles the teeth of cow in shape, means it is narrower at the top and wider at the bottom.

Indicatoin:

a) Dwichidra Bhagandara yantra – for diagnostic purpose.
b) Ekachidra Bhagandara yantra – for treatment purpose.

Comments: Bhagandara yantra is the same instrument like Arshoyantra, the minor difference between the two is the later longitudinal slit, and above this slit there is a circular ridge present in the Arshoyantra. Bhagandara yantra is made without this circular ridge. This modification suggests that its applied use is in the Bhagandara with Kshara sutra, after the application of Kshara sutra, withdrawal of the instrument facilitates easily.

Arsho Yantra

Description: Arshoyantra is the second instrument in Nadiyantra .It is a hollow tubular instrument should be made of Gold.,Silver, Bronze,Iron , Ivory and wood for diagnostic and therapeutic purposes.

Arshoyantra is four anguli long .Acharya Sushruta advocated different circumference for male and female , male- 4 angula long and 5 angula circumference, female- 4 angula long and 6 angula circumference. It should posses 3 angula long and thumb size wide lateral slit.It should contain two circular ridges from half angula away from the opening on both end.

It resembles the cow tail with one end wide and narrow at the other end.

Use: (a)Dwichhidra or Arshoyantra is used for diagnostic purposes.

(b)Ek chhidra or Arshoyantra with single slot is ued for therapeutic purposes to apply kshar, Agni or instrument

(c)Sharang without any slot is used to apply pressure or to dilate anal canal.

The patient of haemorrhoids is allowed to take light and fresh diet before surgical intervention. The patient should lie down on the wooden surgical table in supine position facing the buttocks towards the light(sun) with elevated hip after covering the perineum patient should make the knee chest position and stabilized with the help of string and strong attendants. After lubricating the instrument and the anal opening it is introduced gradually while the patient is asked for straining. This will help to maintain comparatively less discomfort in instrument introduction into the sensitive anal canal and improve in clear visualization of the hemorrhoids for the treatment.

This instrument is designed for the proper visualization and to apply treatment that is kshara, agni, and other medicaments for the treatment of haemorrhoids. The instruments having two slots one is for the proper visualization and another for the application of instruments to fascilitate proper utilization of kshara, agni and medicaments.

Vrana Yantra:

Vrana Yantra has a similarity with Vasti Yantra. Vrana Yantra is used for the treatment of nadi vrana by abhyanga and kshaalana.

Acharya Dalhana has described the single variety but Acharya Arundatta has described two types of Vrana Yantra one for nadi vrana abhyanga and another for nadi yantra kshaalana.

Vrana yantra should be designed to accommodate length and breadth of the vrana resembling with Basti Yantra. Vrana Yantra is comprised of following parts 1) Vrana Yantra Vastiputa - which acts as the reservoir of medicine. 2) Vrana vasti netra – is a tubular shaft which is connected with Vrana yantra vastiputa. Itss length should be 8 anguli according to Sushruta and six anguli according to Acharya Vagbhata. The proximal end is of thumb size which is connected with vasti puta and the distal end resemble with mudga daal.

It is tubular like that of the tale of a cow.

Use:

1) Prakshaalana – Cleaning of nadi vrana with kashaaya.
2) Abhyanga – application of oily medicaments.

Procedure of Application – The kashaaya or oily medicines are filled in vasti puta and which is connected with vrana vasti netra. The tip of vrana vasti netra is gently passes through the opening of the vrana and medicines are discharged compressing the vasti puta.

Vasti Netra :

Vasti netra is used to introduce medicines in liquid form through the rectum it is more or less similar to the Nadi yantra but it differs only in the bigger size of vasti. Therefore it is known as vasti yantra.

Uttara Vasti Yantra:

Uttara Vasti is very much similar to vasti netra which helps to introduce medicine for urethra and vagina. It has two main parts vasti puta as reservoir for medicine and pushpa netra that is hollow, tubular structure. This resembles the tail of cow and made up of different

type of metals like gold, silver, bronze, etc. the length of pushpa netra is 14 angula for male and 10 angula pramana for females (Acharya Sushruta). Whereas, Charaka and Vagbhata advised 12 angula for male. The thickness of vasti netra for male should be of mustard size where as for the female should be of the size of a mudga.

Mootra vriddhi yantra :

Mootra vriddhi is used to drain out scrotal fluids. It has two components – Vrihimukha shastra and Dwidaara naadi.

The vrihimukha shastra six angula long with sharp tip which is half angula long this instrument is used to make the skin incision the dwidaara naadi is a cylindricall hollow tube made of metals is used to drain the fluid. This instrument is used for visravana karma of ashtavidha shastra karma. Vrihimukha shastra is used to make an incision besides the sevani of scrotum followed by introduction of dwidaara naadi which helps to drain out the fluids after the removal of instrument sthagika type of bandage is applied.

Mootravriddhi yantra is similar to dakodara yantra but they are named differently because of their use at different places.

Dakodara Yantra :

Dakodara yantra is used to drain out the fluids from the abdominal cavity it comprises of vrihimukha shastra and dwidaara naadi similar to mootravriddhi yantra. Its application is same as mootravriddhi yantra.

Dhooma Yantra :

Dhooma yantra is used to inhale medicated fumes to relieve diseases specially related to chest and head. It is also used to fumigate various type of wounds to reduce discharges and to promote the healing.

Dhooma netra is made of silver, gold, lead, copper, etc. it is a tubular structure with one end is open and the other end is connected with 48 angula dhooma varti. The length of dhumavarti is varied according to the diseases and the material used. For medicated oil it is 32 angula long, for virechana it is 24 angula long, and for coughing (kaasaghna) and vomiting (vaamaneeya) it is 16 angula long. The thickness of tube is similar to berry seed. For fumigation the vrana netra is 8 angula long thicker like pea nut and the opening is equal to kullathi daal (S.CH.40/5)

Nirrudha Prakasha Yantra :

Niruddha prkasha yantra is used for the treatment of niruddha prakasha disease (phimosis). According to Acharya Sushruta the lubricated niruddha prakasha yantra with increasing diamentions is used fro very gradual dilatation of phimosis every third day. (S.CH20/43,45,46) . the similar type of instruments are used in vases of sanniruddha guda (rectal stenosis).

Sannirudha Guda Yantra:

It is similar to niruddha prakasha yantra. It is used for the gradual dilatation of sanniruddha guda (rectal stenosis).

Alaabu Yantra:

Alaabu yantra is made of alaabu hence it is called as alaabu yantra. It is cylindrical in shape and used to suck out vitiated blood. A burning oil wick is kept on the body surface and covered with alaabu yantra around the diseased part. Gradually a vaccume is created which sucks out vitiated fluid material.

Shringa Yantra :

This is made up of cow's horn therefore called as Shringa yantra. It comprises of two ends one edge is broader and another is very narrow like nipple. The broader end is applied over the diseased part of the body and from the other end the fluid material is sucked out after covering the opening with clean cloths to prevent the regurgitation of sucking material in the mouth. This instrument is used in various disorders. For example: Dushta Rakta, foreign body in the ear, dushta stanya.

HISTORY OF ENDOSCOPES

The first endoscope, of a kind, was developed in 1806 by Philip Bozzini with his introduction of a "Lichtleiter" (light conductor) "for the examinations of the canals and cavities of the human body". However, the Vienna Medical Society disapproved of such curiosity. An endoscope was first introduced into a human in 1822 by William Beaumont, an army surgeon at Mackinac Island, Michigan. The use of electric light was a major step in the improvement of endoscopy. The first such lights were external. Later, smaller bulbs became available making internal light possible, for instance in a hysteroscope by Charles David in 1908. Hans Christian Jacobaeus has been given credit for early endoscopic explorations of the abdomen

and the thorax with laparoscopy (1912) and thoracoscopy (1910). Laparoscopy was used in the diagnosis of liver and gallbladder disease by Heinz Kalk in the 1930s. Hope reported in 1937 on the use of laparoscopy to diagnose ectopic pregnancy. In 1944, Raoul Palmer placed his patients in the Trendelenburg position after gaseous distention of the abdomen and thus was able to reliably perform gynecologic laparoscopy.

Karl Storz pursued a plan: He set out to introduce very bright, but cold light into the body cavities through the instrument, thus providing excellent visibility while at the same time allowing objective documentation by means of image transmission. With more than 400 patients and operative samples to his name, which were to play a major role in showing the way ahead, Karl Storz played a crucial role in the development of endoscopy. It was however, the combination of his engineering skills and vision, coupled with the work of optical designer Harold Hopkins that ultimately would revolutionize the field of medical optics.

The restricted vision, the difficulty in handling of the instruments (new hand-eye coordination skills are needed), the lack of tactile perception and the limited working area are factors which add to the technical complexity of this surgical approach. For these reasons, minimally invasive surgery has emerged as a highly competitive new sub-specialty within various fields of surgery. Surgical residents who wish to focus on this area of surgery gain additional training during one or two years of fellowship after completing their basic surgical residency.

Advantages of Laperoscopic Surgery

There are a number of advantages to the patient with laparoscopic surgery versus an open procedure. These include:

- Reduced haemorrhaging , which reduces the chance of needing a blood transfusion.
- Smaller incision, which reduces pain and shortens recovery time, as well as resulting in less post-operative scarring.
- Less pain, leading to less pain medication needed.
- Although procedure times are usually slightly longer, hospital stay is less, and often with a same day discharge which leads to a faster return to everyday living.
- Reduced exposure of internal organs to possible external contaminants thereby reduced risk of acquiring infections.

Risks

Some of the risks are briefly described below:

- The most significant risks are from trocar injuries to either blood vessels or small or large bowel. The risk of such injuries is increased in patients who have below average body mass index[4] or have a history of prior abdominal surgery. The initial trocar is typically inserted blindly. While these injuries are rare, significant complications can occur. Vascular injuries can result in hemorrhage that may be life threatening. Injuries to the bowel can cause a delayed peritonitis. It is very important that these injuries be recognized as early as possible.[5]

- Some patients have sustained electrical burns unseen by surgeons who are working with electrodes that leak current into surrounding tissue. The resulting injuries can result in perforated organs and can also lead to peritonitis.

- There may be an increased risk of hypothermia and peritoneal trauma due to increased exposure to cold, dry gases during insufflation. The use of heated and humidified CO_2 may reduce this risk.[6]

- Many patients with existing pulmonary disorders may not tolerate pneumoperitoneum (gas in the abdominal cavity), resulting in a need for conversion to open surgery after the initial attempt at laparoscopic approach.

- Not all of the CO_2 introduced into the abdominal cavity is removed through the incisions during surgery. Gas tends to rise, and when a pocket of CO_2 rises in the abdomen, it pushes against the diaphragm (the muscle that separates the abdominal from the thoracic cavities and facilitates breathing), and can exert pressure on the phrenic nerve. This produces a sensation of pain that may extend to the patient's shoulders. For an appendectomy, the right shoulder can be particularly painful. In some cases this can also cause considerable pain when breathing. In all cases, however, the pain is transient, as the body tissues will absorb the CO_2 and eliminate it through respiration. [7]

Coagulation disorders and dense adhesions (scar tissue) from previous abdominal surgery may pose added risk for laparoscopic surgery and are considered relative contra-indications for this approach.

UDAR ROGA

The root cause of uder Roga is the vitiated Jatharagni (in Gulm it is Vata).When a person having poor digestion took improper food and lead irregular life style develop various types of gastro-intestinal disorders similar to Gulma.(S.N. 7/5,6)Acharya Sushruta say that vitiated Anil (Vat) disturb the gastrointestinal physiology (Annasar- S.N. 7/6)

PREDROMAL FEATURES OF UDER ROGA

In Ayurveda the prodromal features of every disease has been described .The following features appears before the development of full sign symptoms of Uder Roga –

1.Loss Bal and Varna(strength and glare of body)

2.Valivinash (wrinkles over skin due loss of fat)

3.Jeerna aparigyan (do not recognize digestion/Indigestion)

4.Vidah (burning abdomen)

5.Vastau ruja (pain in hypogastrium)

6. Padgat shoph (Pedal Odema)

VARIERIES OF UDER ROGA

Acharya Sushruta has described eight types of Uder Roga-

1-Vatodar 2.Pittodar 3.Kaphodar 4.Sannipatodar

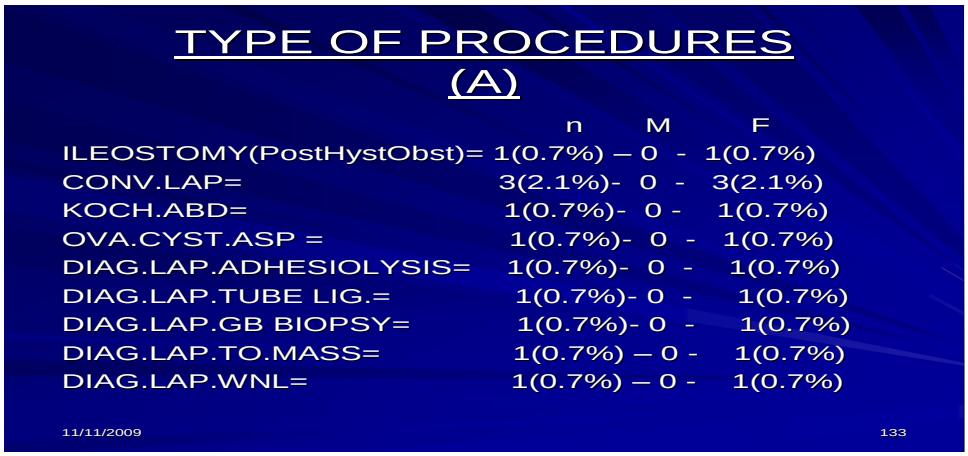
5.Pleehodar 6.Badhagudodar 7.Agantuk 8.Dakodar

COMMON FEATURES OF UDAR ROGA

1.Adhman 2.Gamaneasakti 3.Daurbalyata 4.Durbal Agni
5.shoph 6.Sadan Angata 7.Vat-Purish Sang 8.Dah 9Trishna
REMARK—In almost all Udar Roga Ascites develops and they become incurable ultimately.(S.N.7/43)

OBSERVATION AND RESULT

Table 1 –



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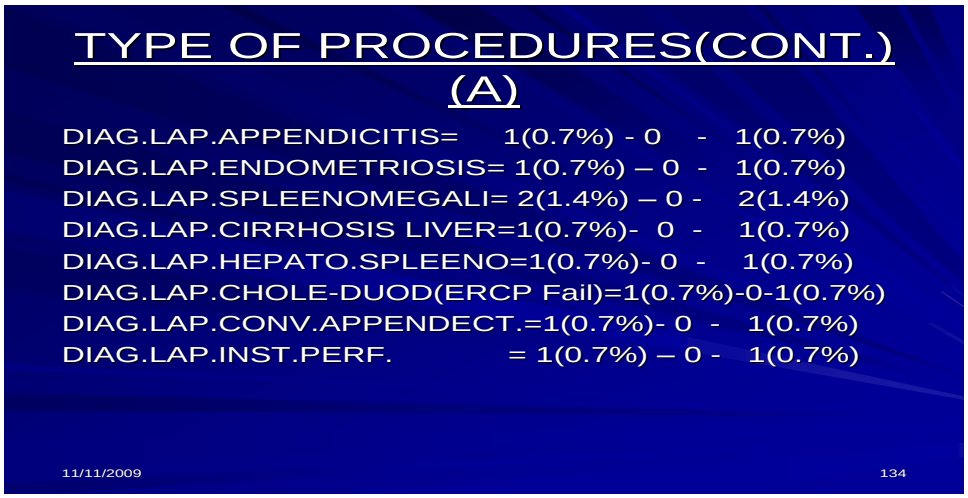

CONCLUSION:

Sushruta has described Nadiyantra as a basic thought stimulus for Laparoscopes
Laparoscopic procedures are helpful to diagnose and treat udar Roga in better way than earlier. Gall bladder diseases which are not mentioned in Ayurvedic literature are diagnose and treated in a better way now a days with help of Modern Nadiyantra.
Gall bladder is most common in Vat –Kaphaj prakriti of the patients.

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LEGAL PROTECTION TO THE ISM PRACTITIONERS.

Dr. D.N. Pande, I/C Section of Sangyaharan, Faculty of Ayurved, I.M.S., B.H.U., Varanasi.

Notifications and GO:

Board of Indian Medicine, Uttar Pradesh

I

(G.O. No. 2916 B/V-1208-48 Dated October 27, 1950)

Subject: Acceptance of Medical Certificates granted by Vaids and Hakims.

The Medical Certificate granted by the registered Vaidyas and Hakims will in effect bifurcated at par with those grams by the registered medical parishioners of the Allopathic system.

II

(G.O. No. 1603 BIV- Dated April, 21, 1953)

Subject: Use of Sulpha drugs and Sureptomycin by Ayurvedic and Unani Practitioers.

1. Under sections 39 (i) and 4 (2) of the U.P. Indian Medicine Act. 1939, the Ayurvedic and Unani practitioners who live been registered under the said Act enjoy the same status as the Allopathic registered practitioners. There is also no provision in the Indian Drugs Act and the rules framed there under prohibiting the registered Ayurvedic and Unani practitioners from prescribing sulpha drug or sureptomycin. Accordingly, no objection should be raised to vaids and Hakims using sulpha drugs, streptomycin and other allopathic medicines and drugs in treating their patients.

2. The question of the use of these drugs at the State Ayurvedic and Unani dispensaries does not arise, as the drugs are not sumied to these dispensaries. The Vaidyas and Hakims incharge of these dispensaries can, however use these drugs, if they like, on their provate patients treated outside the dispensaries.

III

(Extract of G.O. No. Dated March 17, 1961)

Subject: Definition of registered medical practitioners under the Drugs Rules.

The Government has given a to the question of withdrawing the permission already granted to the registered Ayurvedic and Unani practitions of the State for their using allopathic and other drugs meure in Schedule H and L of the Drugs Rules, and has come to the couclusion that the said permission need not be withdrawn.

TRUE COPY-
(R-5 Misra)
REGISTRAR

AGENDA OF HEALTH MINISTRY:

Ministry of Health and Family Welfare

100 Days agenda for health sector
20:5 IST

The President's address to both the houses of Parliament has given roadmap for next hundred days for the Union Government. On the Health sector, the President promised consolidation of National Rural Health Mission (NRHM), setting up a National Council for Human Resources in Health as an overarching regulatory body and revival of vaccine producing institutes in the public sector.

The Ministry of Health & Family Welfare has chalked out medium term and long term policy prescriptions to fulfill the promises made by the government.

National Rural Health Mission

The National Rural Health Mission (NRHM) has started showing very good results. Janani Suraksha Yojana has succeeded in bringing pregnant mothers in large numbers to Primary Health Centres (PHCs) and Community Health Centres (CHCs) for institutional deliveries. This has resulted in reduction of

Maternal Mortality Ratio (MMR) from 301 per 100,000 live births in 2001-03 period to 254 in 2004-06 period. Infant Mortality Rate (IMR) has been brought down from 58 per 1000 live births in 2005 to 55 per 1000 live births in 2007. There is also significant increase in attendance of out-patients and in-patient cases in PHCs, CHCs, availability of drugs, diagnostics and Doctors.

While the benefits of the National Rural Health Mission have reached the common man to a great extent, yet the Ministry of Health & Family Welfare has come to the conclusion that much more needs to be done particularly for remote and far off areas of the country. Therefore, in the next three months, the Ministry of Health & Family Welfare in consultation with state governments, will identify, difficult, most difficult and inaccessible areas, particularly in hilly states, North Eastern States and tribal areas in other states. After having identified these areas, the Ministry of Health & Family Welfare shall help these state governments in filling up the deficiencies in the strength of doctors and paramedical staff. The Ministry, through NRHM, shall make funds available for contractual appointments and provide significantly higher monetary incentives based on location of posting. These incentives will encourage the medical personnel to brave the difficult conditions in such remote locations and encourage them to serve the poor and needy people at the cutting edge level. In inaccessible and remote locations, efforts will also be made to train health personnel to assist in safe home deliveries and greater attention will be paid to 'home based new born care' in such locations.

Monitoring Mechanism

A web-based Health Management Information System (HMIS) will be fully operationalised by 31st July 2009 to enable District specific reporting of progress in NRHM on a monthly, quarterly and annual basis. This will enable timely monitoring of physical and financial progress more effectively.

Health Manpower Policy

One of the major bottlenecks in our efforts to improve the public health care system

is the overwhelming shortage of Specialist Doctors and Para medical personnel across the country. While Government is taking action to expedite the setting up of 8 AIIMS like institutions and upgrade 19 State medical institutions across the country, this alone will not fully meet the shortage of human resources in health sector. The Ministry of Health & Family Welfare will therefore, formulate a comprehensive medium and long term policy within the next three months for meeting the deficiencies of human resources in health sector. This would also include the initiation of setting up of a National Council for Human Resources in Health as an over-arching regulatory body as announced by the Hon'ble President of India in the Parliament in the 100 days' Programme of our Government.

Within the next three months, the Ministry of Health & Family Welfare would also formulate a scheme for strengthening and upgradation of State Government Medical Colleges to increase Post Graduate medical seats in departments where there are critical shortages such as Gynaecology, Anaesthesia, Paediatrics, etc.

Revival of Vaccine institutes

The Ministry of Health & Family Welfare is committed to revive the vaccine manufacturing units under Public Sector. An oversight committee has already prepared a roadmap for revamping of the vaccine manufacturing facility at CRI, Kasauli. Project reports are being prepared for revival of BCG, Guindy and PII, Coonoor.

Other important initiatives

A bill to amend the Drugs and Cosmetics Act(1940) would be prepared for creation of the Central Drug Authority, an autonomous body to regulate drugs and pharmaceutical products. The objective of this Act is to ensure that all regulatory norms like Good Manufacturing Practices (GMPs), Good Laboratory Practices (GLPs), and Good Distribution Practices (GDPs) are enforced in uniform manner throughout the country. The bill would also provide separate provisions/chapters in

the Act to regulate medical devices, clinical trials and exports. This would further ensure that high quality drugs are within the reach of Indian population at affordable prices and would also ensure freer movement of Indian pharmaceutical products in international trade and commerce.

There has been an increasing perception that the Transplantation of Human Organs Act, 1994 (THOA) has not been effective in curbing commercial transactions in organ transplants and has, at the same time thwarted genuine cases due to the complicated and long drawn process involving organ donation. The Ministry of Health & Family Welfare will initiate a proposal to introduce a Bill in Parliament to comprehensively amend the THOA to make the process of organ transplantation less cumbersome for genuine cases and also network all transplantation centres for better coordination and utilization of harvested organs.

*****

DS/GK

SANGYAHARAN SHODH

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

Chief Editor: Dr. D.N. Pande Asso. Editor: Dr. K. K. Pandey Managing Editor: Dr. S. Sharma Treasurer:Dr. R.K. Jaiswal

APPEAL

All the members of Association of Anesthesiologists of Indian Medicine are requested to send articles / research papers / case reports and chapters realated to anesthesia. Please ensure that the articles include only the opinion and data which you have evidences and records. The sole responsibility will be to the authors. The editorial staff disclaims any responsibility whatsoever for the consequences of inaccurate or misleading data, opinion or statement published herein.

Chief Editor

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विषय - प्रदेश इन्टेग्रेटेड चिकित्सकों के विरुद्घ कि जा रही उत्पीड़न की कार्यवाही रोके जाने के सम्बन्ध मे.

महोदय,

उपर्युक्त विषय पर मुझे यह कहने का निर्देश हुआ है कि, अवगत ही है कि, आयुर्वेदिक / युनानी चिकित्सकों को पंजीकृत किये जाने का कार्य उ०प्र० भारतीय चिकित्सा परिषद द्वारा संपादित किया जाता है । सम्प्रति प्रदेश मे आयुर्वेद / युनानी पद्धति के अन्तर्गत आयुर्वेद एवं युनानी चिकित्सकों को यु०पी० इन्डियन मेडिसिन एक्ट, 1939 की धारा 39(1) एवं 41 (2) के अन्तर्गत एलोपैथिक औषधियों के भि उपयोग हेतु अधिकृत किया गया है तथा एलोपैथिक चिकित्सकों के समान ही अधिकार प्राप्त है । मा० उच्च न्यायालय के आदेशों के क्रम में झोलाछाप चिकित्सकों, जिनका कही भी पंजीकरण नही है, के विरुद्ध कार्यवाही किय जाने के निर्देश दिये गये है । अतः इस सन्दर्भ मे यहा निर्णय लिया गया है कि, उ०प्र० भारतीय चिकित्सा परिषद द्वारा पंजीकृत आयुर्वेदिक / युनानी चिकित्सकों के विरुद्ध की जा रही उत्पीड़न कार्यवाहियों के सम्बन्ध मे यदि संबन्धित चिकित्सक के द्वारा पंजीकरण प्रमाण-पत्र प्रस्तुत किया जाता है तो उसके विरुद्ध कार्यवाही न की जाये ।

अतः उपयुक्त निर्देशों का कड़ाई से अनुपालन सुनिश्चित किया जाये ।

भवदीय
जगजीत सिंह
सचिव

प्रति लिपि निम्नलिखित को सुचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित -

- निर्देशक, आयुर्वेदिक एवं युनानी सेवाए, उ०प्र० लखनऊ ।

- रजिस्ट्रार, उ०प्र० भारतीय चिकित्सा परिषद, लखनऊ ।

आज्ञा से
जगजीत सिंह, सचिव

PERIOPERATIVE MANAGEMENT OF HYPERTENSIVE PATIENT THE PRACTICAL GUIDELINES.

Dipak Poman* D.N.Pande**

Perioperative hypertension is ***sustained elevated BP***

The Joint National Committee on Detection, Evaluation and treatment of High blood Pressure made the following recommendations regarding classification of hypertension:

Category	Systolic (mmHg)	Diastolic (mmHg)
• Normal	< 130	< 85
• High Normal	130-139	85-89
Hypertension		
• Stage 1 (mild)	140-159	90-99
• Stage 2 (moderate)	160-179	100-109
• Stage 3 (severe)	180-209	110-119
• Stage 4 (very severe)	>210	>120

Good rules of thumb are :

- Age + 110 = Upper limit of normal
- Age + 130 = Significantly high systolic BP.

Why is hypertension important to the perioperative management of anesthesia and surgery ?

- It is common – hence the role of the anaesthetist as a screen for the patient.
- It is a risk factor for cardiovascular disease. - Association with other atheromatous artery disease (cerebral, coronary and peripheral)
- It causes end organ damage: heart, brain, kidneys
- It may indicate the presence of serious endocrine related disease: diabetes, thyrotoxicosis, phaeochromocytoma, Cushing's, Conn's syndrome, etc.
- It may indicate the presence of serious renal disease

- Antihypertensive drug interactions, with each other and with anaesthetic agents
- It increases risk of an adverse anesthetic outcome.
- Perioperatively it indicates: Anxiety, Inadequate anesthesia (awareness) and Inadequate analgesia

Pathophysiology:

Sustained rise in blood pressure leads to adaptive muscular hypertrophy in both arterioles and left ventricle and following the La Place law, these results in two major pathophysiological changes:

-High SVR

- Left Ventricular Hypertrophy

-End organ dysfunction: Peripheral blood vessels, Heart ,Brain, Kidneys

The lowest limit of blood pressure tolerated without symptoms-

- ✓ 65 mmHg in severe hypertension,
- ✓ 53 mmHg in treated hypertension and
- ✓ 43 mmHg in normotensives.

Should elective surgery be postponed?

For rational guidelines, five important debatable questions need to be addressed,

1. Is the patient hypertensive?

- There is no physiological dividing line between normotension and hypertension.
- The WHO criterion is blood pressure > 160/90 mmHg.
- A good definition is the level at which the benefits of action exceed the risks of inaction.

2. Are hypertensives at higher risk?

- Incidence of postop. MI or reinfarction in hypertensive patients was consistently double.
- SBP elevations are a better determinant of risk (strokes, myocardial infarction)
- Mild to moderate hypertension per se does not increase the risks of major morbid events.

- It may affect perioperative morbidity through the extent of end-organ damage. hypertension & can increase the risk of MI from -imbalances in myocardial O2 supply & demand.
- The SBP should not be decreased to a level lower that of the patient's DBP.
- Pre-existing hypertension appears to be associated with an increased risk of perioperative circulatory instability which might be related to decreased sensitivity of the baroreceptor reflex.
- Surgical mortality is fairly high in patients with renovascular hypertension.
- Undiagnosed pheochromocytoma - may have devastating operative consequences, such as - catecholamine-induced coronary artery spasm or - sustained malignant hypertension

3. Does treatment matter?

Severe untreated hypertensive patients have greater variations in BP and a greater incidence of myocardial ischaemia and dysrhythmias.

Mild/moderate untreated hypertension is more controversial.

However, it seems that

- Controlling treatment does matter and
- Presence of end organ involvement increases the risk.

4. Is short-term 'cosmetic' therapy sufficient?

- Acute treatment with vasodilation reduces the numbers but does not alter reactivity of blood vessels.
- Treatment should be given for several weeks.
- However, preoperative administration of β-adrenergic antagonists can reduce intraoperative hemodynamic instability and myocardial ischemia in hypertensives.
- Preoperative administration of a single dose of a β-adrenergic blocking drug such as atenolol, effectively attenuates heart rate associated with tracheal intubation and emergence.

5. Is local anaesthesia a safe alternative?

- Spinal/epidural: untreated hypertensives respond with a greater and unpredictable decrease in BP than do treated patients.

- Local infiltration/nerve block: this seems to be a simpler and safer technique; however, the possibility of inadequate block should be borne in mind.

Intraop. adjustments in anesthetic depth and use of vasoactive drugs should reduce the incidence of postoperative complications referable to poor preoperative control of hypertension.

Preop. hypertension and periop. risk:

The determinants of perioperative risk are :

- Level of blood pressure – severe hypertension increases the risk of myocardial ischemia, MI, pulmonary edema, arrhythmias, renal failure and neurologic damage.
- Duration of treatment
- Degree of end organ damage
- Type of surgery – Aortic surgery, carotid endarterectomy, CABG, craniotomies (aneurysm clipping), posterior fossa surgery – all are at risk of postoperative hypertension.

Patients with mild to moderate hypertension are not at increased risk of major morbid events.

- It must also be remembered that patients with any form of preoperative hypertension *treated or untreated*, have an increased risk of post op hypertension.
- It is only when evidence of severe end-organ damage (e.g. LVH, CRF, CVA, CAD, LVF, etc) are present that the risk increases significantly
- Elective surgery should be postponed in: - DBP>110 mmHg (in the presence of complications) and DBP > 120 mmHg (even in the absence of complications.)

Guidelines for management of the hypertensive patient:

- Preoperative management of hypertensive patients should be optimized and maintained. A diastolic blood pressure above 110 mmHg is considered a contraindication for elective surgery.

- Pre-existing LVH and / or left ventricular failure are major risk factors.
- Well-controlled hypertensive patients are at less risk of adverse cardiovascular events, during and after surgery, than are poorly controlled or untreated patients.
- Assess the severity of SBP (better determinant of risks)
- Assess the severity of DBP. For moderate uncontrolled group with no end organ involvement, the decision will depend on:
  - the experience of the anesthetist
  - the duration & type of surgery
  - The patient's other medical conditions (obesity, diabetes mellitus and chronic obstructive airways disease).
- Intraoperative hypertension is usually a response to laryngoscopy and intubation or to surgical stimulation.
- Sympathetic overactivity is the main cause of such adverse events; therefore, a β-adrenergic blocking drug or α2-adrenergic agonist can be beneficial.
- Epidural block during surgery is well tolerated hemodynamically and can contribute to the suppression of excess sympathoadrenal activity.

It is wise to delay elective surgery if :

- SBP is > 200 mmHg, or if
- DBP is >120 mmHg, until the blood pressure is < 190/110 mmHg, preferably lowered to 140/90 mmHg over several weeks
- Acute control within hours is inadvisable

Investigations:

- ECG is a useful screening test for LVH (with strain) with important prognostic implications (Have an increased risk of cardiovascular events, cardiac dysfunction, atherosclerotic vascular disease, arrhythmias – such as ventricular arrhythmias and atrial fibrillation - and sudden death. Also have a fourfold increased risk of stroke compared with a patient who has similar blood pressure levels but no LVH)
- Hypercholesterolemia adds to the cardiovascular risk

- If urinalysis indicates proteinuria, it would be important to quantify the degree of proteinuria with a 24-hour urinary protein excretion.
- In severe hypertension with paroxysmal symptoms such as pallor or palpitations, urinary catecholamines would be useful as a screening test for rare causes such as pheochromocytoma.
- Echocardiography would be a second-line investigation and would be best noninvasive method for studying cardiac structure and function.It is also superior to the ECG in confirming LVH.
- An abdominal ultrasound may help in excluding - renal artery stenosis (unilateral small kidney), adrenal tumors and renal disease (bilateral small shrunken kidneys).

Scenarios associated with perioperative hypertension:

- Pregnancy-induced hypertension
- Pre-eclampsia
- Carotid endarterectomy
- Paradoxical hypertension after aortic coarctation repair
- Liver transplantation
- Autonomic hyper-reflexia
- Pheochromocytoma

Differential diagnosis of periop. hypertension:

- The most easily remedied causes of acute hypertension related to surgery are stress, anxiety and pain or bladder distension.
- Hypertension on the second or third postoperative day – check - ? Drugs withheld
- Other agents (MAOI, cocaine, large I/V salt loads during/after surgery) may also elevate BP
- Perioperative hypertension may be the presenting sign of a pheochromocytoma.

Treatment options:

- Though there is a long tradition and many other pharmacokinetic reasons for using nitroprusside as the drug of choice,

- Other drugs chosen earlier in the hierarchy of these questions have proven benefits in reducing morbidity and mortality.
- Esmolol is suggested as the initial beta blocker because of its short duration of effect (and therefore reversibility);
- A longer acting agent is often used after initial beta blockade with esmolol.

Intraoperative hypertension:

Most frequent causes of intraop. hypertension are:

- Direct rigid laryngoscopy, Limiting laryngoscopy to $\leq$15 s can minimize BP
- Tracheal intubation and extubation.
- Surgical stimuli under a light level of anesthesia.
- Prolonged tourniquet time (during limb surgery).
- Malignant hyperthermia
- Shivering (hypothermia and vasoconstriction),
- Bladder distention
- Systemic absorption of vasoconstrictors.

Various pharmacologic drugs administered 1-2 min prior to laryngoscopy can blunt the stress response to laryngoscopy and intubation

- Low-dose Fentanyl, Sufentanil (5-7 μg/kg) or Alfentanil (30-100 μg/kg)
- Lidocaine either i/v (1.5 mg/kg) or topically,
- α- or β-adrenergic blocking drugs e.g
  - Esmolol (up to 1-2 mg/kg) or
  - Labetalol (0.15-0.3 mg/kg) or
  - Nitroglycerin (50-100 μg),
  - Sodium Nitroprusside (0.3-1.0 μg/kg/min) may also be used for management of hypertensive crisis
- Fenoldopam is also a useful agent (and may improve or maintain renal function).
- Propofol causes greater depression of laryngeal reflexes and less adduction of the vocal cords than thiopental (besides causing less variation in blood pressure compared to thiopental)

- Sublingual Nifedipine - Avoid (reflex tachycardia has been associated with myocardial ischemia)

A balanced technique of anesthesia alone may not effectively block the sensory input from the surgical field - higher conc. of an inhalation anesthetic may be necessary to prevent the rise of BP

- Epidural and light GA may effectively block the sensory input from the surgical site.
- Lumbar or Thoracic segmented epidural blocks during abdominal or thoracic surgery are well tolerated hemodynamically & contribute to the suppression of excess sympathoadrenal activity
- Adequate hydration pre-op. can attenuate the fluctuations in blood pressure often seen during anesthesia ("roller-coaster" anesthesia).
- For best results, hydration overnight is preferred.
- It is advisable to use agents with minimal haemodynamic effects.
- Opioids and NSAIDS reduce hypertension intra- and post-operatively
- Loss of venous tone during induction and during the operative procedure is more common - risk of acute hypotension. This is often best managed by physical measures (e.g. Trendelenberg position) and judicious intravenous infusion of fluids.

<u>Post op Hypertension can be caused by:</u>

- Pain (35% of hypertensive cases),
- Sympathetic stimulation of emerging from anesthesia (16%) – emergence excitement,
- Hypercarbia (15%),
- A full urinary bladder
- Hypoxemia,
- Reaction to the tracheal tube,
- Hypothermia, shivering,
- Preop. withdrawal of antihypertensive medication,
- Administration of drugs that increase BP

As much as 30% of postoperative hypertension is idiopathic and resolves within 3 hours.

- Exceptions exist in vascular and neurosurgery, where even brief elevations in BP in the postoperative period have been associated with poorer outcomes, especially bleeding from suture lines, wounds, or chest tube, loss from vascular anastomoses, intracranial bleeding, etc.

Treatment :

- When secondary causes are not responsible for the rise in blood pressure, treatment with:
  - Calcium channel antagonists,
  - Beta-blockers and
  - Drugs that block both alpha- and beta-adrenergic receptors. (Oral drugs - usually not an option, - i.v. drugs preferred)
- Nitroprusside is the drug of choice for short-term control of BP, especially intraoperatively and in the first day post-op.
- Nitroglycerin infusions are commonly used during and after cardiac and cardiovascular surgery, but can be technically challenging
- i.v. Nicardipine is sometimes given when an antianginal arteriolar dilator is preferred
- Enalaprilat is the only ACE-inhibitor available for intravenous use, and also has prolonged effects after acute administration.
- Phentolamine is generally useful only for pheochromocytoma.
- Diuretics are usually given only if there is fluid overload, iatrogenic or not.
- Hydralazine, a potent vasodilator, should be avoided in patients with hypertensive hypertrophic cardiomyopathy because diastolic filling can be compromised by reflex tachycardia from rapid vasodilatation.

For many patients, the risk of hypotension and organ hypoperfusion after a long-acting antihypertensive agent is probably higher than the acute risk of a few minutes of hypertension. As a result, short-acting, easily titrated drugs are generally preferred, for the shortest possible duration.

Prospective monitoring of the patients

- BP, urinary output,
- Serum creatinine, and

- cardiac enzymes

Allow the physician to minimize BP deviations and watch for and avoid target organ damage.

Summary:

- Morbidity or mortality reduction with preventing or treating hypertension in the perioperative setting,
- This is generally accepted as standard medical practice. The addition of a beta-blocker to the antihypertensive regimen has been shown to decrease the incidence of cardiovascular events
- Continuation of chronic antihypertensive medications,
- Postponement of surgery for those with severe preoperative hypertension, and careful control of BP both intraoperatively and in the postoperative period, may increase the likelihood of uneventful recovery after an otherwise successful surgical procedure.

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Cardio Cerebro Pulmonary Resuscitation –A New Dimension for AYUSH Practitioners

Dr. D.N. Pande, I/c Section of Sangyaharan, Faculty of Ayurved, I.M.S., B.H.U., Varanasi.

The Association of Anesthesiologist of Indian Medicine came in existence in the year 1996 and we planned to publish an official journal of the Association. Thus a Journal Sangyaharan Shodh came in existence with an Inaugural edition in the year 1997 at the inaugural function of First National Conference of A.A.I.M. on 7th March 1997, at B.H.U. Varanasi. The Association continuously tried to raise its voice for development of Ayurved and helped the society by its activity. In this chain we planned to start a regular workshop on C.C.P.R. for Ayurvedic / Unani / Homeopathic Physician and surgeons as well as for the Paramedical staffs. In collaboration with Section of Sangyaharan the workshop got very popularity in the Ayurvedic world.

We first started a 15 days workshop and arranged dummy for neonatal resuscitation with an Intubations Model. Further Prof. V.P. Singh the then Director of IMS provided finance to purchase an adult Resuscitation Model and thus a full set was now in hand for training purpose. Till date nearly 142 participants had all ready received this training.

Aim & Object of the Training of C.C.P.R.

Even though lacks of Ayurvedic/Unani/ Homopathic doctors are present all over the country but Ayurvedic, Unani and Homeopathic practitioners are ignored for emergency management.

Neither the government nor the N.G.O. recognized their strength for the management of DISASTER. I thought that if we will train these lacks of hands in C.C.P.R., they will be helpful for the society during any emergency/ DISASTER./calamity, The society will also show its interest as well as respect to these force- doctors of Indian system of medicine.

Further it will be also helpful to the doctors who are still not in a position to train their paramedical staff for this very essential service.

Thus with a dream to serve the humanity this workshop came in existence. In nut shell workshop is focused on –

1. To provide a skilled rescue personal every corner of the country.
2. To provide training to each and every doctors of Indian system of medicine all over the country.
3. To provide training to paramedical staffs.
4. To provide training to youngsters and even school boys and girls.
5. To draw attention of AYUSH to create facility for this programme.

Situation in which CCPR is required:-

1. Traffic accidents
2. Natural calamity flood/earth quack etc.
3. Drug reactions
4. Cardiac patients and in some diseases
5. In the wards and O.T.

What is C.C.P.R.?-

Our heart pumps blood to the tissues of our body and blood carry oxygen provided by respiration in which our lungs take part. Thus the oxygen is available to the brain. If due to any reason our lungs stop working heart will not get oxygenated blood and the oxygen will thus not reach to the brain. If this condition remains for 5 minutes the oxygen saturation to brain tissue will diminish and start to swell and finally nonfunctioning will occur which will be irreversible.

Therefore lungs and heart are responsible for function of brain. Delay in resuscitation will cause Brain Death even though lungs and heart may be functional. It is why cerebral (brain) resuscitation is our prime aspect.

1. C = Cardio = Cardiac Resuscitation
2. C = Cerebro = Cerebral Resuscitation
3. P = Pulmonary = Lungs Resuscitation
4. R = Resuscitation

Lungs are the driving force in this process and are tried to keep functioning at the beginning then the heart. If the lungs start functioning well the heart will take its charge automatically if it is not damaged due to any other reason.

The steps to restore the function of lungs & heart

Cardio Cerebro Pulmonary Resuscitation is termed as C.P.R. - Cardio Pulmonary Resuscitation. But due to importance of cerebral oxygenation now it is termed as C.C.P.R. which is more suitable. I will include C.C.P.R for all the emergency conditions due to any reason. The following three are to be managed during any emergency-

A. Cardiac Arrest
B. Respiratory Arrest
C. Unconsciousness

These all of the three or any one of the three can occur during any accident or calamity or during normal course of treatment. Any one of these three conditions or all of the three requires immediate attention of the clinician or rescuer. The line of management is very similar and interrelated for all these three conditions. This emergency can occur any where at any time. The rescue personnel /clinician should be able to resuscitate a victim of these conditions.

Early cerebral oxygenation is the key to success.

Carrdiac Arrst:

Causes

- Hyperactivity of the vagus nerve
- Severe oxygen deficit or excess of carbon dioxide
- Sensitivity to drugs
- Degenerative conditions of the blood vessels and nervous tissue of the heart
- Electric shock
- Hemorrhage
- Electrolyte changes
- Cardiac Catheterization and Angiocardiograph
- Air embolism and pulmonary embolism
- Stimulation of vagus nerve
- Airway obstruction
- Failure of oxygen supply during anaesthesia
- Asphyxia due to any cause

Sign:

Pallor, Cold Clammy Skin, Imperceptible pulse (Carotids) , Loss of muscle tone, cessation of respiration, dilated pupil.

Type:

A systole: when heart stopped completely

Ventricular fibrillation: The fibers of the heart muscle contract at its own rate and in place of regular forceful contraction of the whole ventricle irregular twitches all over the surface are found. Thus the heart fails to expel any blood from the ventricle. During cardiac massage heart feels like a bag of warms.

Diagnosis:

- Absence of arterial pulsation
- ECG Asystole, Ventricular fibrillation
- Absence of heart sound
- Pupils widely dilated

- Absence of breaking
- Pale or cyanosed
- Opthalmoscopy – the veins of fundus show regimentation of blood.

Management:

Aim: to provide oxygen to the brain.

Equipments required:

Pharyngeal airways of different sizes.

Oxygen facilities

Ventimask, Catheters, Flow regulations, Oxygen test, Oxygen cylinder,

Ambu Bag -Neonatal, Pediatric, Adult

EMO /Boyles Machine/Ventilator

Suction apparatus

I.V. canula/ Dripset / I.V. fluids

Drugs- Atropine, Adrenaline, Aminophyline, Avil, Cortisone, Dopamine, Mephentine, Sodium bicarbonate, Potassium Chloride, Calcium Chloride and sodium chloride.

Pulse oxymeter

Cardiac Monitor and defibrillators

Endotracheal tubes- 0 to 10 Numbers

Line of Treatment:

(I) Basic life support (BLS)

A. Airway

B. Breathing

C. Circulation

(II) Advance life support (ALS)

D. Drugs

E. ECG, Electrolyte& Equipments

Basic life support (BLS) :

First try to call the victim-

- Hay l Hallow
- Check Pulse
- Feel the breath & the chest falling

Positioning of the patients:

Head should be lowered and leg should be elevated. The patient should be placed on a rigid surface and neck should be slightly extended.

Airway (A): Should be made patent by clearing the nose and oral cavity by suction. An oropharyngeal airway should be properly placed.

Breathing (B): If the patient is not able to breath spontaneously with above procedure then artificial ventilation should be started either by mouth to mouth or by mask and bag (Ambu Bag).

Even then if it is difficult to continue the endotracheal intubations should be done with intermittent positive pressure ventilation.

Circulation (C): For maintenance of circulation external cardiac compression should be started simultaneously with ventilation in the ration of 2:30 (2 time ventilation and 30 times cardiac compression total five cycles per minute).

Technique: Heel of the left land over the lowered IIIrd of sternum with Rt. Hand placed over it. Both arm should be straight and whole body pressure should be given to sternum with thrusting movement -30 times per cycle so that the sternum be displaced back ward about one inch towards the vertebral column. Pressure must not be extended towards the ribs as they may easily be fractured. After each 30 compression two breaths should be given. In children only one hand and limited pressure should be used. In infants only thumb pressure should be exerted.

If pulse is palpable at carotid or femoral artery, the cardiac compression is successful. The total resuscitation time is 3 to 4 minutes only.

Assessment of Resuscitation (A+B=C)

30 Second to 60 Second for Airway and breathing, next 2 minuets to 3 minutes for C.C. + breathing. If pulse is + five proceed for further ventilatory support for 10 minutes.

If H.R. – less than 60 /Minutes & breathing is absence- proceed for ALS

Advance life support (ALS)

Drug (D): Adrenaline 0.05 to 0.2 mg for conversion of slow fibrillation to rapid fibrillation.

I.V. infusion of 8.4% sod. Bicarbonate

E.C.G. monitoring to diagnose:

A systole – I.V. 5 to 10 ml 1% Cal. Chloride

Venti. Fib – Electrical defibrillation before CC

CC – if fail -with in 10 min. – direct card compression.

Vent Arrhythmia – I.V. Lignocaine (5 ml 1% Solution)

Cerebral Edema- Manitol Solution 20%

Electrolyte: - should be monitored and the deficit should be replaced.

Afler Care:

- Continuous observation in ICU /Monitoring
- Biochemical estimation- IOP Chart, Elect., PCV
- Fluid balance
- Blood loss/Protein estimation
- Mouth care

- Chest infection – Physiotherapy, Antibiotics
- Body care – to prevent bed sores
- Feeding with – I.V., Gastric tubes
- Monitoring- Resp. Rate, Vol, Blood Gases, Haemodynamics – H.R., B.P., C.V.P. E.C.G., Temp.
- CNS- ECG, Pain, Consciousness

Special Consideration for Unconscious Patient:

1. Endotracheal intubations
2. Gastric aspiration- Ryles tube/Feeding tube
3. I.V. infusion if unconsciousness is due to overdoses of drugs
4. Forced diuresis with frusemide

If urine O.P. is low-the following regime be followed-

A. 500 ml 5% Dextrose + 5 ml Sod. Bicarb.
B. 500 ml 5% dextrose + 24 ml. Mol. Potassium chloride
C. 500 ml. Normal saline

Sequence = A,B,C, at rate of 500 ml per hour

Dialysis – Peritoneal / Haemodialysis

Control of Convulsion with I.V. diazepam 10-20 mg/4-6 hours,

I.V. Nondepolarising muscle relaxant with I.P. P.V.

Control of Temperature:

Hyperpyrexia by – Surface cooling with chlorpromazine, Drugs – Aspirin / Paracetamol

Hypothermia by – using warm blankets

Respiratory Arrest: is managed according to the line of treatment described earlier.

Complication of resuscitation – Rib fracture, Tracheal injuries, Aspiration of gastric content.

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 favor 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 favor of *Sangyaharan Shodh*.

Hypotensive Anaesthesia

Maurya Bhaskar* **Pandey K. K****

Definition

A deliberately reducing systolic blood pressure to 8o - 90 mm hg or mean arterial pressure to 50 - 65 mm hg in order to reduce peri operative bleeding.

The clinical criteria are to reduce the blood pressure by 1/3rd of preoprative value.

Aim of hypotensive anaesthesia

- To minimise blood loss at surgical site
- To provide bloodless field for surgeon.
- Importance during day care surgery.
- An expected excessive blood loss.
- Surgical procedures may be life threatening in absence of controlled / deliberately hypotension.
- It also reduced the complications resulting from major blood loss eg. Hypovolemia and blood transfusion

Bleeding control

Arterial bleeding-

- Normal haemostatic phenomena are incapable of controlling bleeding from incised arteries
- Flow from damaged arteries depends upon size and the intraluminal pressure.

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*JR-II, Section of Sangyaharan

**Associate Prof., Setion of Sangyaharan, IMS, BHU,Varanasi.

- Decreased vascular resistance or decresed cardiac output [or both] decreases arterial pressure
- Elevation of the cut end of artery above the aortic root leads to a Decrease in a blood flow from blood vessel.
- Arterial pressure decreased by approx 1mmhg for every 1 cm increase in vertical distance.
- Diastolic arterial pressure reflect the level of peripheral vascular tone ,an increase in diastolic pressure resulting from tachycardia or release of catecholamine increases arterial bleeding.

Venous bleeding

- Venous congestion and pooling lead to torrential hemorrhage.
- Elevation of wound improves venous drainage
- Head up posture is often used during head and neck surgery this leads to reduction in venous pressure and at the site of operation
- Hypoventilation during anaesthesia increase venous bleeding because hypercapnia causes dilation of veins.

Auto regulation

blood flow to major organs such as heart ,brain, kidney is

maintained at a reasonable constant value by local auto regulation which is effective though out a range of arterial pressure. Lower limit of auto regulation is mean arterial pressure 50 -55 mm hg .

Indications

Expected major blood loss,Pelvic surgery for malignance ,Head ,neck surgery requiring reconstruction,Reconstructive spinal surgery eg.- scoliosis correction, Revision of hip prosthetic surgery,Complex neurosurgery,Pituitary surgery, Microsurgery, Middle ear surgery,Craniofacial reconstruction,Endoscopic sinus surgery, Nerve and micro vascular surgery,Intraocular surgery,Vitrectomy,Choroidal surgery

Contraindications

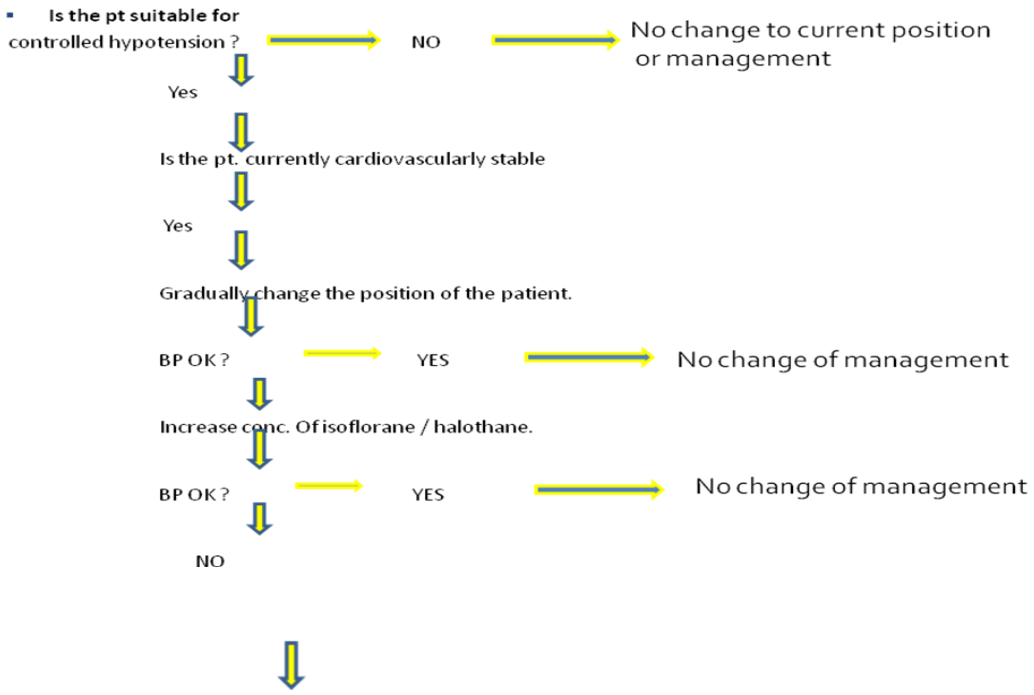
Carotid artery stenosis, Liver dysfunction, Pregnancy, Glaucoma, Hypovolemia, Renal impairment., I.H.D,Untreated hypertension, Raised ICT, Claudicating peripheral vascular disease.

Hypotensive anaesthetic drugs

Sodium nitroprusside, Nitroglycerine, Inhalational anesthetic agent e.g halothane,Spinal/epidural block ,Ganglionic block,Calcium channel blocker,Pge1, ά blocker, β blocker, ά blocker + β blocker

Reversal of controlled hypotension

- Initially hypotensive agent such as i.v vasodialater should be discontinue.
- Inhalational agent to be reduced to a normal value.
- Some pt still remains hypotensive so ready to use vasopressure agent judicious use}.



Add 1st line intravenous hypotensive agent.

BP OK ? ⟶ YES ⟶ No change in management

⇩

NO

⇩

Add supplemental intravenous agents if necessary.

Conclusion

- A perfect skill is important for controlled hypotension anaesthesia technique.
- Technique requires basics of physiology and pharmacology.
- Proper assessment is necrssery for controlled hypotension.
- Surgical demand for a blood less field can not be allowed to override the clinical judgment of anesthetists.

Workshop on Cardio Cerebro Pulmonary Resuscitation
(Apada Prabandhan)
Section of Sangyaharan, Department of Shalya Tantra
Faculty of Ayurveda, IMS, BHU, Varanasi – 221005

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