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Vapour

The official E-Newsletter of the
Indian Society of Anaesthesiologists

HIGHLIGHTS

INTERVIEW WITH DEFENCE

ANAESTHESIOLOGISTS

Major General Rashmi Datta, Dr (Brig)
T. Prabhakar, Brigadier Amarjit Singh

ANAESTHESIA IN HIGH ALTITUDE WARFARE

Col Shamik Paul, Col Amit Dua, Maj
Sri Krishna Venigalla, Brig Rahul Yadav

MEDITATION FOR THE ANAESTHESIOLOGIST

Dr Aparna Budhakar

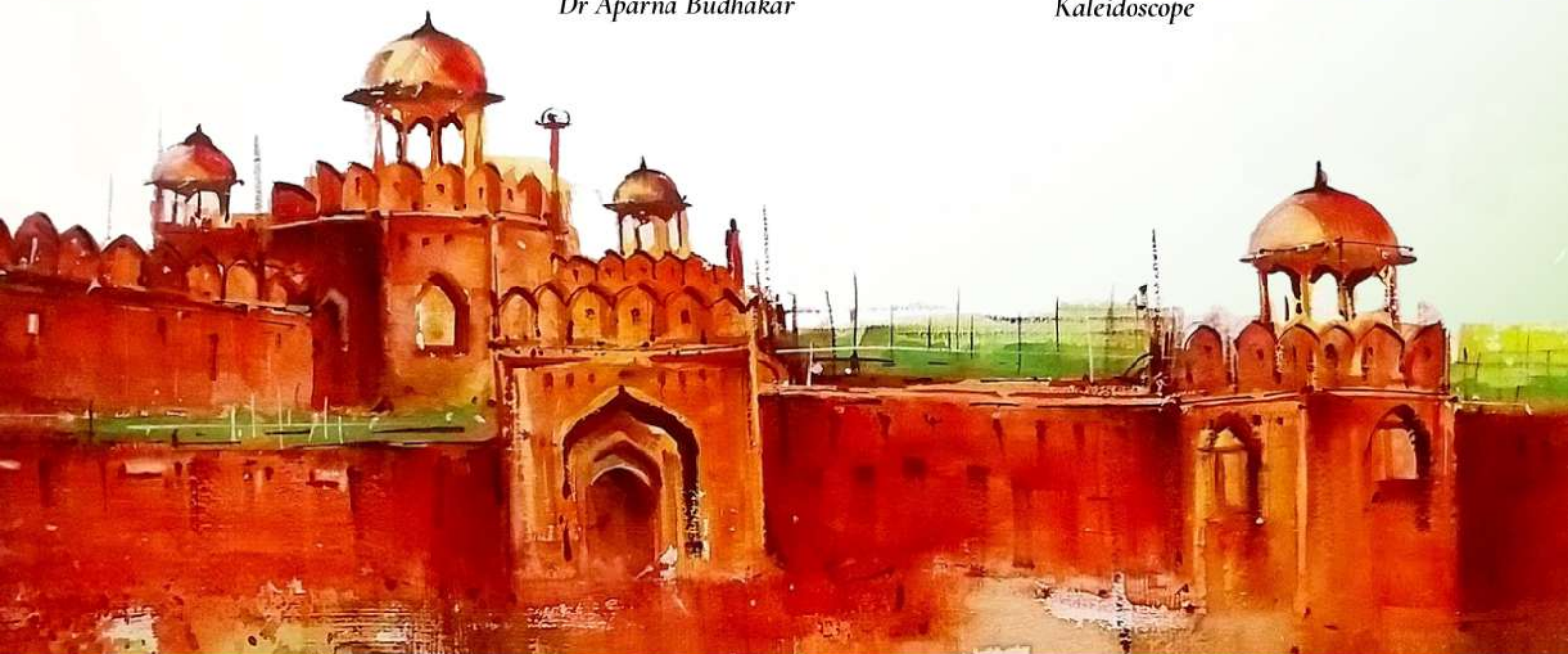
MUSINGS OF A 'YUVA' MILITARY

ANAESTHESIOLOGIST

Maj (Dr) Kapil Ashok Kulkarni

A TRYST WITH DR. VASANTHA KUMAR K R

Kaleidoscope



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EDITOR'S NOTE



Dear esteemed members,
Warm Greetings from the Indian Society of
Anaesthesiologists (ISA) National Headquarters!

The second half of the year has begun, the monsoon rains are in full form and so are the academic showers of the ISA. It is raining conferences, CMEs, workshops and webinars. The ISA activities are in full swing. I am happy to present to you this monsoon issue of VAPOUR on the day of the 76th anniversary of India's independence. It is filled with the warmth of articles from the anaesthesiologists of the Defence Services of India. The adventurous experiences of the military anaesthesiologists, their tales of valour and sacrifice, the gracious description of their unique professional lives reinvigorate our bodies with a sense of awe and respect for them. Before World War I, Anaesthesiology had not been given any importance. Most young men assigned to the position of anaesthetist during World War I had little or no training in the subject. Towards the end of the war, the importance of having specialists in Anaesthesia at the front was realised.[1] Since then, Anaesthesia in the defence services has grown. The several great wars that have been fought all over the world have contributed to the growth of Anaesthesiology. The waves of death and injury have produced counter-propagating waves of innovation.

On behalf of the ISA National and the editorial team of VAPOUR, I wish to express my gratitude to all the senior and young defence anaesthesiologists of our nation, who have spent their valuable time to contribute to VAPOUR. The nation is proud of the stars on their shoulders. I am sure that their valuable inputs will inspire many anaesthesiologists.

The colourful vapours of this issue also include a relaxing article on the delicate art of Meditation, exotic photography by our very own ISA colleagues, beautiful 'Independence Day special' water colour paintings (including the picture on the cover page) by the talented anaesthesiologist, Dr Maya Bhalerao and the 'Kaleidoscope' illustrating the reflections of aptitude in another gifted anaesthesiologist. I am sure that these artistic vapours will warm the cockles of your heart. This issue is dedicated to the Society of Defence Anaesthesiologists of ISA (SDAISA) and to the President ISA National, Dr(Major) MV Bhimeshwar.

Long Live ISA!

Dr Sukhminder Jit Singh Bajwa
Honorary Secretary ISA National
Editor-in-Chief

'VAPOUR'

(The official newsletter of the ISA National)

Reference

1. Mercer SJ, Whittle CL, Mahoney PF. Lessons from the battlefield: human factors in defence anaesthesia. Br J Anaesth 2010;10;9-20.
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ISA NOTICE BOARD

CONFERENCE & CME CALENDER OF ISA (2023)

Conference/CME (Coming up)	Location	Hosted by	Dates
ISA sponsored National CME	Kolhapur (Maharashtra)	ISA Kolhapur city branch	26th-27th August 2023
ISACON Delhi	Delhi	ISA Delhi branch	1st to 3rd Sept 2023
32nd East Zone Conference & 50th State Annual Conference 2023	Berhampur, Ganjam Odisha	ISA Odisha state	8th to 10th September 2023
ISACON UP 2023	Kanpur	ISA UP State	22nd to 24th September 2023
18th Annual Chattisgarh State Anaesthesia Conference	Durg Bhilai Chattisgarh	Durg Bhilai Anaesthesia association	23rd& 24th September 2023
RAJISACON 2023	Udaipur, Rajasthan	ISA Rajasthan state chapter	29th September to 1st October 2023
ISACON Puducherry 2023	MGMCRI, Puducherry	ISA Puducherry branch	29th September to 1st October 2023
35th BJISACON -2023 Bihar-Jharkhand State Conference	Darbhanga, Bihar	ISA Darbhanga city branch	29th September to 1st October 2023
MP State Conference, ISACON MP2023	Bhopal	ISA Bhopal city branch	1st-2nd October 2023
ISACON Maharashtra 2023	Pune, Maharashtra	ISA Maharashtra state &SAP Pune	5th to 8th October 2023
ISACON AP 2023 Vizag	Visakhapatnam	ISA Andhra Pradesh	6th to 8th October 2023
ISA sponsored National CME	Amritsar	ISA Amritsar	8th October 2023
ISACON Kerala 2023	Thiruvananthapuram, Kerala	ISA Trivandrum city branch	13th to 15th October 2023

Conference/CME	Location	Hosted by	Dates
ISACON Gujarat	Abu Road, Rajasthan	ISA Mehsana city branch	13th to 15th October 2023
ISA Central zone 2023 & ISA-Uttarakhand state annual conference 2023	VCSGGMC&RI, Srinagar Garhwal	Uttarakhand Society of Anaesthesiologists	28th, 29th October 2023
ISACON 2023 (Annual conference of ISA)	Gurugram, Haryana	ISA Haryana state	22nd to 26th November 2023

Note: The dates mentioned in the above table are tentative & as per information received.
The list of upcoming conferences will be updated in subsequent issues.

Indian Journal of Anaesthesia
The ISA-IJA REAP academic webinar series (fortnightly, every Thursday between 5pm to 6pm) is being conducted.

ISA academic webinar series
The ISA-Clinical Practice oriented webinar series (CLIP) and Clinical Reasoning and Problem Solving webinar series (CRISP) (fortnightly, every alternate Thursday between 6.30pm to 8.30pm) are being conducted regularly and they have received good feedback.

ISA National PG online classes
These are being regularly conducted every Monday between 6.30 to 8pm. Experienced PG teachers are taking PG oriented classes including exam-oriented topics.

An interview with a defence anaesthesiologist

Major General Rashmi Datta



Good morning, Madam!

Warm Greetings to you from the editorial team of VAPOUR!

We all know that life in the defence services is unique and is different from that in civilian areas. However, most of us are not aware of what exactly you go through and your pattern of work. We are sure that you must have faced gritty & adventurous situations in your career. Please do share these with us. Here are some questions pertaining to your life as a defence anaesthesiologist.

1) How is a deployed operational environment? Can you describe it?

Anaesthesiologists are medical professionals who specialise in providing anaesthesia and perioperative medical care to patients. However, in the defence sector, their role primarily involves being deployed on board military ships, aircraft and field hospitals to provide anaesthesia services during combat operations, humanitarian missions and other military operations.

1. Field hospitals: Anaesthesiologists are essential members of field hospitals deployed in combat areas or during humanitarian missions. The forces are on alert both in the northern sector and the North-East sector. They provide anaesthesia services to soldiers injured in battle or to civilians affected during conflict or natural disasters. They also handle medical emergencies that require surgical procedures.

2. Airborne operations: Anaesthesiologists are deployed on military aircrafts to provide anaesthesia and critical care during aeromedical evacuations. They accompany injured soldiers or civilians on flights, ensuring their stability and comfort during transport. They play a vital role in providing pain management and stabilising patients during evacuation.

3. Naval deployments: Anaesthesiologists are stationed on military ships and naval vessels to provide anaesthesia services to naval forces. They contribute to the surgical teams on board, performing or assisting in surgery for injured personnel, and help manage pain and provide critical care during emergencies.

4. Special operations: Anaesthesiologists may be deployed with special forces units to provide anaesthesia and pain management services during specialised operations. They play a critical role in providing medical support to these units in the field.

5. Training and education: Anaesthesiologists also contribute to the training and education of medical and non-medical personnel within the defence sector. They conduct courses and provide lectures on anaesthesia techniques, pain management and critical care as part of military medical education programs.

6. Civil Aid: the armed forces are increasingly being deployed in-aid during natural disasters and civil turmoil and so does the exposure of

Armed forces medical services (AFMS) anaesthesiologists to operational environments. It is worth noting that based on the specific deployment in defence, the anaesthesiologists tailor their healthcare provisions and medical support based on the operational requirements and available resources.

2) How are the anaesthetists prepared /trained to work in military areas? Do we have a Battlefield Advanced Trauma Life Support Course?

Training in Battle Field Anaesthesia:

Apart from assessing the basic anaesthesia training, the final year trainees are sent to Armed forces medical college (AFMC) for a period of four weeks to undergo training in which the following subheads of their duties as an independent anaesthesiologist in remote/field areas are also imparted.

1. ADMINISTRATIVE FUNCTIONS

- Man-management of the operation theatre (OT) staff- including their leave planning and professional enhancement through various courses.
- Stores management- Formulation of Monthly Maintenance Figures for all consumables for OT and intensive care unit (ICU) in the field/remote locations with keeping in mind the threat perception and operational role of such formations where the facility exists.
- Indenting of equipment for modernisation of the OT and ICU.
- Lectures for preventing pilferage in the department
- Lectures on assessing the functionality of facilities including but not restricted to mobile/static OTs in remote locations.

2. TECHNICAL FUNCTIONS

- Lectures on Triage and Battlefield Critical Care including Damage Control Surgeries and resuscitation
- Transport of critically ill patients who are priority one to higher echelons-When, Who, How to transfer?

3. OPERATIONAL REQUIREMENTS

- All Permanent Commissioned Officers of the AFMS undergo mandatory promotional courses wherein their role in operations including but not restricted to setting up of forward field hospital units and establishments of detachments including technical support platoons are imparted and refreshed.
- The AFMS officers are also imparted with the role of other fighting as well as support arm assets in their area of deployments through these mandatory courses.

Operational environments are not routine. There is lot of makeshift arrangement with basically a 'scoop and run' policy where a complete range of resuscitative equipment and consumables are not available. Infection control is compromised. It is basically life and limb saving management and transport back to higher echelons.

Regarding battlefield advanced trauma life support course, we have already proposed a trauma management course specific for the Indian Armed Forces along the lines of the trauma courses followed by UK, Israel and other countries. We are dealing with deserts, jungles, seas, high altitude and underwater. The range of our casualties is wide. There is a need for a uniform battlefield advanced trauma life support course, which should be taught to all levels of uniformed people right

from non-medicals to specialists.

Four specialists who were part of the Organ Transplant Programme at Army Hospital R and R proposed a National Armed Forces Organ Retrieval Network in 2011. This got incorporated into the Transplantation of human organs and tissues act (THOA) rules of 2014. Para 31 F of the act states that where the AFMS is considered as a state in respect to organ donation. Similarly, we have also proposed a combat trauma management course which we named as Battlefield Trauma Management Program. We hope that this will soon see the light of the day.

3) Can the various national/international guidelines be followed in field hospitals?

The field hospitals are generally deployed in forward and disturbed areas and needless to mention that there is the paucity of resources in such places. In an event of war, the first casualty is generally the plan itself and hence it is important to always keep more than one back-up plan. The importance of golden hour concept has already been established through various international war diaries and publications. The international guidelines hence are an important asset in the armamentarium of clinicians for managing critically ill patients in the event of war.

However, tailoring of these guidelines to provide best patient care in the eye of unfavourable enemy and unhospitable climate must be factored.

Yes, various international guidelines and standards can be followed in field hospitals to ensure that the highest quality of healthcare is provided to patients. Here are some of the guidelines that can be followed:

1. **World Health Organization (WHO) Guidelines:** The WHO provides guidelines for emergency medical teams (EMTs) and field hospitals during humanitarian crises or disasters. These guidelines cover various aspects such as coordination, organisational structure, equipment and supplies, staff training, infection prevention and control, and clinical care.

2. **International Committee of the Red Cross (ICRC) Guidelines:** The ICRC provides guidelines for medical personnel working in armed conflicts and other situations of violence. These guidelines cover topics such as the ethical obligations of healthcare providers, medical impartiality, treatment of detainees, and the provision of quality healthcare in resource-limited settings.

3. **International Organization for Standardization (ISO) Standards:** ISO has developed standards related to healthcare quality management systems. ISO 9001:2015, for example, provides guidelines for the implementation of a quality management system in healthcare organisations, including field hospitals.

4. **National and Military Guidelines:** Each country and military organisation may have its own specific guidelines for field hospitals and healthcare provision in the defence sector. These guidelines take into account the country-specific regulations, the prevailing clinical practices and available resources.

5. **Speciality-Specific Guidelines:** Various speciality organisations, such as the American Society of Anesthesiologists (ASA) or the European Society of Anaesthesiology (ESA),

publish guidelines for specific aspects of anaesthesia and perioperative care. These guidelines can be followed to ensure that anaesthesia services in field hospitals meet the highest standards. I am hopeful that Indian Society of Anaesthesiologists (ISA) will also publish similar guidelines.

Following these guidelines helps ensure that field hospitals adhere to best practices in clinical care, infection control, patient safety and medical ethics. However, it is important to adapt these guidelines to the specific context and resources available in the field hospital settings.

4) How does a deployed field hospital function?

The general function of a field hospital can be defined as 'shoot and scoot' along with the unit it is supporting. The role of the armed forces is also to be mobile and the field hospitals accompany the movement of troops. Hence the Field Hospital can be either in constructed structures or deployed in tents.

The concept of field hospital is to provide comprehensive health care to the troops in the event of war/ insurgency. It has basic two components:-

a. Administrative component

- Which deals with the administration components of the posted strength, and the general day to day running of the hospital including movement of personnel and components in the advanced areas.
- Tying up with various other elements of the forces to plan the movement of all components of the hospital including technical components and support elements.

b. Technical Support Group

- This group composes of para medical staff, medical officers and specialists.

The Field hospital can function as an independent unit and may also be sub-divided into various small sub-units which may function either independently or get attached to other units in order to provide them medical support in the form of triage, treatment, holding and evacuation of casualties.

Essentially a field hospital and all its components are mobile advancing units who are supposed to advance with the forces to provide comprehensive health care to fighting forces. Setting up these hospitals has to be quick yet efficient.

5) What are the key human factor elements in defence anaesthesia?

- Empathy
- Connect with the troops
- Service before self
- Welfare of troops is always paramount.

6) Any tips on anaesthetising a multiply injured patient in the operation theatre?

Anaesthetising multiple injured patients in the operation theatre is like as in a civil set up. Most of our OTs are well equipped for basic life and limb support surgery. The tenets of hypovolaemic shocked patients are the same-

- Know your limitations both administrative and technical.
- Only urgent surgeries to be carried out.
- Understanding of the patho-physiology of injury and associated organ damage.
- Quick triage of the patient.
- Gathering the present resources and following a quick in and out approach with only damage control.

- Assessment of Risk/ Benefit ratio for surgery/ rear evacuation.
- Avoidance of Lethal triad-Prevent Hypothermia by using forced air warmers, warm intravenous fluids and oxygen therapy.
- Two wide bore intravenous cannulae.
- Adequate volume resuscitation before anaesthesia is must.
- Avoidance of infections with broad spectrum antibiotics.
- ASA recommended minimum mandatory monitoring.
- Using regional anaesthesia unless contraindicated.
- No central neuraxial blockade in existing hypovolaemia.
- Using intravenous agents like Ketamine unless contraindicated in events like severe hypovolaemia, associated head injuries.
- Judicious usage of Opioids.
- Always keep self-inflating resuscitation bag ready along with supra glottic airway devices, tracheostomy sets, pressure bags, etc.

7) What is your experience of doing cardiopulmonary resuscitation (CPR) in a disaster/ field area?

Doing CPR in a disaster or field area is fraught with many complications. Firstly, safety of the anaesthesiologist and the patient is paramount. Secondly, performing CPR while transporting has its own problems. Automated CPR equipment like ZOLL Thumper is not routinely available. There are problems of starting intravenous (IV) lines and giving drugs. Usually when CPR is required at the front line, it is mainly basic Life support with a part of advanced life support that is utilised.

8) Patient transfer from the injury site/lower level hospital to a higher level hospital is common in defence set-ups.

Can you tell us how it is done? What is the role of the anaesthesiologist in casualty shifting and helicopter evacuation?

Patient transfer is done routinely from lower echelons to higher echelons. Both road and air evacuation are done. Depending on the circumstances, the problems of evacuating patients in pressurised aircrafts such as helicopters is well documented, and we follow the same principles. The collaboration of the army with the Air Force for casualty evacuation is very well streamlined and effective. However, there are few limitations of weather and terrain and decisions are taken on a case-to-case basis.

9) Are you also given training to use weapons like soldiers?

Yes; all doctors, paramedical staff are trained to use weapons like soldiers. However, the training is basic under the Geneva convention. We are there to treat patients irrespective of their nationality.

10) How is the experience of treating the families of defence personnel & their families in military hospitals?

Treating the families of defence personnel in military hospitals is like treating our own family. There are protocols in place to treat the family of serving defence personnel. A good referral system is also present. Medicines if not available are made available by us just like we would have done for our families.

11) Do you think a military training module is necessary in the anaesthesia postgraduate-training programme?

Yes, a military training module or training in battlefield anaesthesia is important considering the current scenario of civilian dramas, explosions and natural disasters

occurring all around us. More than a formal training, there is a need to emphasise improvisation, while encountering difficult situations during residency. Hence, I would advise the younger anaesthesiologists to be well-versed in the finer nuances of the speciality.

12) How can one adopt a career of a defence anaesthesiologist? Do you think females can take up this profession?

One can very well adopt a career of a defence anaesthesiologist. Being a lady myself, I have risen to the rank of a Major General. I agree, a career in the armed forces is not easy. There will be times when we are deployed suddenly in the times of a disaster, but one has to be ready to adapt immediately and be fully prepared for the same.

13) What are the research areas in defence anaesthesia?

Currently, the research areas could include anaesthesia in trauma cases and in difficult terrains such as high altitude and deep underwater sea. We have the Medical Journal Armed Forces India wherein research can be published.

14) Can you tell us something about the Society of Defence Anaesthesiologists of Indian Society of Anaesthesiologists (SDAISA)?

It is a state chapter of the ISA. It has anaesthesiologists from all three services, both serving and retired from all the states of India. Nevertheless, it is my brainchild; I remember that efforts to form the SDAISA began in 2019 and it finally got validated at Ahmedabad in 2021. The SDAISA holds regular meetings and has its Newsletter which is published regularly.

Thank you Madam for this interview with VAPOUR.

ABOUT THE EXPERT



MAJ GEN RASHMI DATTA, VSM(RETD)
ISA No: R-786/10804

MD (Anaesthesiology), DNB (General Medicine and Aviation Medicine), FICA, FACEE

Area of Interest: Critical Care, Pain Management, Obstetrics

Contributed to framing National Guidelines on Organ Donor Management under the Director General of Health Services, Ministry of Health and Family Welfare, Govt. of India. She is on the Managing Council of the Indian Resuscitation Council, affiliated with the International Liaison Committee on Resuscitation which has formulated Indian guidelines on CPR and is on the Indian Society of Anaesthesiologists (ISA National) Advisory Committee. She has also authored two books, and several chapters, and published more than 50 papers in various journals of national and international repute on Anaesthesiology & Critical Care. She is a dedicated teacher and examiner for several Universities and Post Graduate Medical Institutions in India

Awards:

‘Vishisht Seva Medal’ in 2016

An interview with a defence anaesthesiologist

Dr (Brig) T. Prabhakar



Good Morning Sir!

Warm Greetings to you from the editorial team of VAPOUR!

You have spent a major part of your life working as a defence anaesthesiologist. We are sure that that your life as a defence anaesthesiologist must have been full of interesting experiences. Here are some questions related to your life as an anaesthesiologist in the armed forces-

1) How did you become an army doctor? Was it your goal from the beginning?

My father died when I was in fourth year MBBS and my elder brother was in final year Engineering. He joined the Indian Navy through college entry and when I finished MBBS, my brother insisted that I apply for Armed Forces though I wanted to go abroad. I had to listen to him although it wasn't my first choice. But Army gave me all that I wanted. I started liking Army life after I joined.

2) Is the life of a defence anaesthesiologist risky? Did you have to go to battlefields in your career?

It isn't that risky because you get an opportunity to serve in border areas and difficult terrains only twice or thrice during your tenure.

Rest of your tenure you spend working as an anaesthesiologist in well-equipped hospitals

with all the modern facilities. During my service, I was posted thrice in difficult areas. During the Kargil war, I was posted in a Base hospital in Jammu & Kashmir. We used to get patients by helicopters, day and night, as it was an advanced hospital close to the war zone. It was tough but we all liked saving their lives.

3) Do you frequently have to work in an unfamiliar environment & with unfamiliar equipment?

We were trained to establish operation theatres at a very short notice because mobility was a very important issue. We were made to relocate depending on the requirements in the war zone. We established the same with very minimal equipment like EMO inhaler, Flagg can and portable Boyle's machine and minimal anaesthetic drugs like Ether, Ketamine and regional anaesthesia drugs.

We performed only limb and life-saving surgeries at such centres.

4) What about the surgical & anaesthetic equipment used in field hospitals? Is it similar or comparable to that in a civilian set-up?

Very minimal and portable equipment were provided in field hospitals as we were supposed to perform only limb and life-saving surgeries.

5) Have you used the KEM-bottle & the Triservice anaesthetic apparatus?

Yes, we have used KEM bottle and Triservice anaesthetic apparatus for field anaesthesia in addition to Boyle's machine, EMO inhaler, Oxford bottle etc.

6) What are the types of cases seen in the field hospital?

All types of cases mainly vehicular accidents, gunshot injuries, blunt trauma, blast injuries, severe head and chest injuries come to the field hospital. But only limb and lifesaving surgeries are done here and after stabilisation, these patients are sent to Base hospitals and Command Hospitals for advanced management.

7) Can you describe the injury patterns /trauma that you have encountered in your career?

I have tackled all types of injuries and emergencies in various army hospitals. We got super specialities in Base and Command hospitals. Most of the Command hospitals are teaching hospitals for MD and they are at par with any medical college in India. I have specialised in Neuro-anaesthesia and Intensive care from AIIMS, New Delhi. Hence, I used to practice Neuro-anaesthesia in Army Hospital.

8) How is a casualty with multiple injuries dealt with? How are decisions taken on the patient?

We follow protocols laid by Advanced Trauma Life Support (ATLS) guidelines. All the decisions are taken according to our strict standard operating procedures(SOPs) which are laid down already in the hospital in advance.

9) Any tips on anaesthetising a multiply injured patient in the operation theatre?

Resuscitation and priority for life and limb saving surgeries are followed, but anaesthetising them is a real challenge. First, do no harm to the patient. Blood transfusion facilities are superb in military hospitals. Whenever you require blood, soldiers come and donate voluntarily and willingly. Never has there been a scarcity of blood.

10) How do you resuscitate a military casualty with multiple injuries? How do you fluid resuscitate/do fluid replacement /blood transfusion? Is blood freely available in the field locations?

As I have already mentioned above, fluid resuscitation has got more priority over blood transfusion. Minimum anaesthetic drugs with better monitoring of fluid balance takes priority. Mechanical ventilation and better oxygenation are also needed to be taken care. In our experience, I found dry patients, well oxygenated, pain free patients survive better.

11) Can you tell us some interesting & inspiring war-time stories?

Yes, I have many stories of our triumph of reviving many patients who had 90% loss of blood who were revived by immediate ventilation with 100% oxygen, blood transfusion and monitoring of coagulation factors.

On 2nd Aug 1999, there was a major train accident where Brahmaputra mail and Avadh Assam express trains collided head-on due to signal failure at Ghaisal, a remote Railway station in West Bengal. There were about 2500 passengers travelling in those trains. 278 people died. At that time, I was working in a Base hospital which was near to the accident

site. About 98 seriously wounded Army personnel were brought to our hospital. We were only two anaesthesiologists performing resuscitation and simultaneously giving anaesthesia for surgeries that were performed for the next 48 hours. Some patients were put on ventilators and some required chest drains and intensive care. We lost only one patient who had a complete transection of spinal cord. He was quadriplegic and remained on ventilator for a long time and succumbed. I must have saved many by immediate oxygenation, fluid and blood transfusions, relieved tension pneumothorax of few by putting in a needle and later performed intercostal drain insertion with underwater seal drainage. We also tackled many chest injuries and abdominal injuries later.

I was honoured by the President of India with 'Vishisht Seva Medal' for this work.

12) How is the aviation working environment & maritime environment different from army environment for an anaesthesiologist?

We are all trained together and later shifted to Air Force and Naval units besides Army. Naval anaesthesiologists work in a limited space on a ship, but their job is very tedious in reviving the patients involved in deep diving lung and brain injuries.

13) Which anaesthesia drugs do you use most commonly on the battlefield/in the field hospital?

I prefer regional blocks and Ketamine anaesthesia in field setting, but nowadays Propofol and Fentanyl are a preferred trend with good monitoring in field condition.

14) What is your advice to the anaesthesiology trainees of today? Should

they join the defence services?

I must say that one's priority in life should be a respectful, honest, fruitful and satisfying career. In Army, not only do you get the best quality of life but also time to pursue your ambitions and to fulfil your familial obligations. Indian army needs your professional talents and it will give you ample opportunity to fulfil your ambitions.

15) As a doctor, how is life in the army? How is the experience?

Today, Army is the best kind of service for a Doctor and I with my personal experience would recommend all of you to join the Army.

16) Can you share with us some inspiring & memorable experiences of treating the families of defence personnel & their families in military, naval and air-force hospitals in your career?

There are so many heart-touching experiences during my 34 years of service in the Army that it might be difficult to pick one to narrate. When I was posted in a border road hospital, I used to get lot of patients from landslides, vehicles falling into deep gorges. When I was in Airforce hospital in Bhutan, I used to get patients with poisoning, snake bites and patients with acute severe asthma.

17) Do you think that you have led an extraordinary professional life? Are you proud of the stars over your shoulders?

Yes, certainly I have led an extra-ordinary life professionally. I was recognised outside Army as well in civilian life also. Because of my Army training I could withstand the pressures in civil life also after retirement as Vice Chancellor of a Medical University and National President of the Indian Society of Anaesthesiologists.

Thank you Sir for this interview with VAPOUR.

ABOUT THE EXPERT

Dr. (Brig) T. Prabhakar
ISA No P4700

Achievements

- Ex-Vice Chancellor, UP University of Medical Sciences
- Received Prof AP Singhal Life-Time Achievement Award in 2018.
- Awarded the 'Etawah Ratna'
- Received "Yash Bharathi", the highest award of Govt of Uttar Pradesh
- Received "Saraswathi Vidya Puraskar" from the Governor of Kerala
- Administered anaesthesia to late Sri Abdul Kalam while he was the President of India
- Retd. As Deputy Director General, Armed Forces Medical Services in 2006.
- Awarded "Vishistha Seva Medal" by the President of India.
- Has many publications to his name.



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An interview with a defence anaesthesiologist

Brigadier Amarjit Singh, VSM (Retd)



Warm Greetings to you from the editorial team of VAPOUR!

You have spent a major part of your life as a defence anaesthesiologist. Can you please share with our readers your experience as a defence anaesthesiologist.

1) Do you require nerves of steel to be an anaesthesiologist in the Indian army/ navy/ airforce?

Well, working as an anaesthesiologist in the armed forces (army, navy, airforce) is tough and challenging. One has to be physically and mentally tough. While being posted in forward areas as a single anaesthesiologist, you are 24 hours and 7 days a week on duty and should be ready to receive and manage the casualties as and when received.

2) What is the special role of anaesthesiologists in the military?

In the armed forces, anaesthesiologists play a very special role during war and peace time. During wartime, we are called to provide the best first line resuscitation, provide anaesthesia for lifesaving surgery if indicated and then evacuate to base hospital for further management. Patients after getting received in forward area set up, get prioritised (priority I, II, III), then managed and evacuated accordingly. In peace area while being posted at a static hospital, we provide anaesthesia cover to the troops and families located in that

area. In addition to being in-charge of the operation theatre (OT) set up, the anaesthesiologist is also in charge of the intensive care unit (ICU).

3) What are the constraints of anaesthesia in the military set-up?

- While working in a field hospital located in a border area, one has to work with the limited resources available. At times, the OT is established in ordinary buildings, sterilisation is a problem, infrastructure is poor and one may be short of equipment.
- You may be a single anaesthesiologist while dealing with a large number of casualties and you may get fatigued.
- There may be a shortage of paramedical staff.
- Non-availability of fresh blood for transfusion. At times, fresh blood is air-lifted from rear hospitals to forward hospitals for life-saving transfusions.
- At times, we have to shift and establish the OT at very short notice and get ready to receive casualties in the shortest time possible.
- Vehicle-based container OTs are now available in the armed forces, moved at short notice to the place of war to manage casualties.

4) Is any special training given to a military anaesthesiologist?

Yes, separate classes are arranged for the military anaesthesiologist for further management of war casualties. The training includes the following:-

- Evacuation of casualties from the place of occurrence
- Receiving at border hospital and documentation
- Allot priorities I, II, III according to severity of injury
- Resuscitation to be started simultaneously if indicated
- Lifesaving surgery
- Evacuation after stabilising the patient
- Special training in the para brigade who are airdropped with equipment to establish OT wherever required

5) It is said that world wars have had an influence on developments in anaesthesia. Can you explain/substantiate this?

Yes, we started anaesthetising patients by pouring ether on the face and now we have so many newer drugs available for quick anaesthetisation and recovery. From hasty procedures of surgery to advance transplant surgeries, we carry them out under safe anaesthesia. Very safe anaesthetic drugs, anaesthesia equipment, and monitoring equipment are readily available now.

Armed forces hospitals located in the field areas as well as peace areas are equipped with the latest equipment. Junior anaesthesiologists are trained to handle these equipment during their training in static hospitals.

As of today, armed forces hospitals have been well modernised and are in a position to carry out all types of surgeries in peace areas.

6) How was your transition from the defence to civilian setups? Was it difficult?

Day to day working in army set up is as per laid Standard Operating Procedures(SOPs). Every hospital has SOPs for functioning such as receiving the patient in OT, shifting to the theatre for procedure, post operative room monitoring and evacuation and back to the ward. Guidelines are existing and all paramedical staff have to strictly follow them. All patients whether officer or Jawan are treated equally. All treatment is free. In civilian hospitals, priorities are different. Corporate hospitals have different priorities compared to government civil hospitals.

An anaesthesiologist from the army needs some time to understand the working pattern in civil hospitals. They prefer to join medical colleges than joining a corporate hospital.

Thank you very much Sir for this interview for VAPOUR!

ABOUT THE EXPERT



Brigadier Amarjit Singh, VSM (Retd)
ISA No: A-0341

- Served in AFMC and large hospitals including Border- static hospitals.
- Took part in management of casualties of Kargil war while posted at Udampur.
- Former Prof & Head of Anaesthesiology and Intensive Care, GSMCH, Patiala. He passed on the baton to our Honorary Secretary ISA National Dr. Sukhminder Bajwa

ANAESTHESIA IN HIGH ALTITUDE WARFARE: LEARNING FROM RECENT CONFLICTS

Introduction

Operation Vijay was conducted in 1999 to recapture the strategic posts in the Kargil sector of Jammu and Kashmir against Pakistani forces which was a localised high-intensity warfare. The Kargil conflict occurred in the mountainous region of the Himalayas, where the altitudes reach as high as 18,000 feet (5,486 metres). The Indian Army also launched **Operation Snow Leopard**, a localised medium-intensity warfare after China failed to move back and restore the status quo ante in eastern Ladakh region in June 2020.

Both operations involved intense combat and posed significant challenges due to the mountainous terrain, harsh climate and the surprise element of the intrusion. Here, we present an overview of our management of medical and surgical casualties in localised low, medium and high-intensity warfare in the treacherous high-altitudes against our adversaries during the **Operation Vijay in Kargil** and **Operation Snow Leopard in Galwan** that occurred in recent times

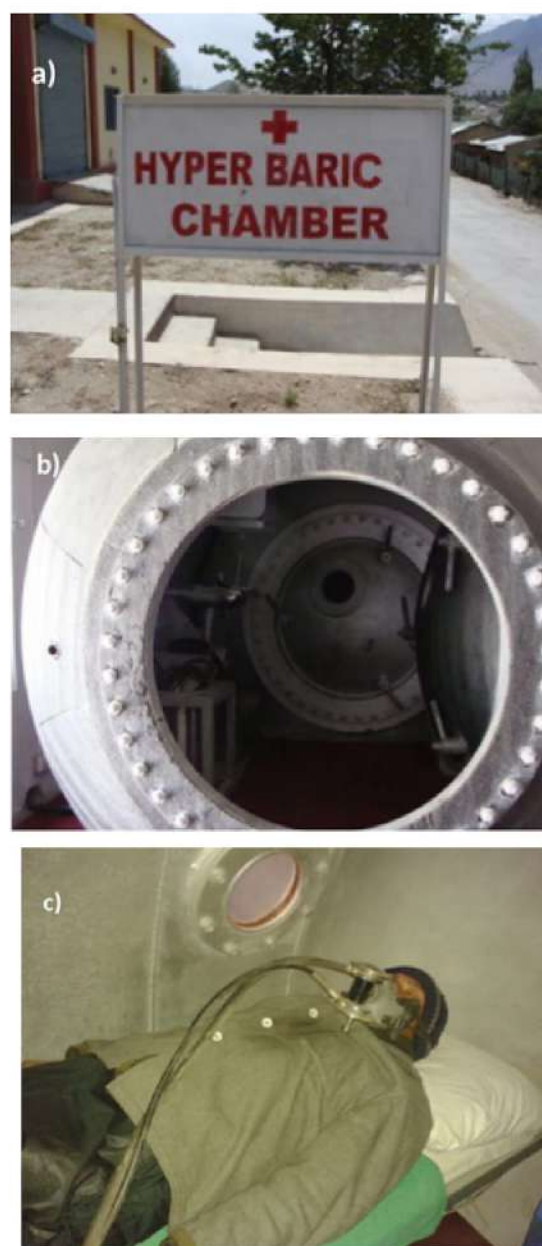
High altitude medical emergencies

High-altitude medical emergencies posed significant challenges.

1. High Altitude Pulmonary Oedema (HAPO):
Soldiers operating at high altitudes were at risk of developing HAPO due to the reduced oxygen levels and rapid ascent to high altitudes.
2. High Altitude Cerebral Oedema (HACO):
Symptoms include severe headache,

confusion, ataxia (loss of coordination) and altered mental status.

HAPO and HACO benefited from immediate descent to lower altitudes, administration of supplemental oxygen, use of hyperbaric chambers and appropriate medications (Figure 1).



Figures 1 a,b: The hyperbaric chamber in one of the forward hospitals of the Indian army. Figure 1c: A combatant being treated in the hyperbaric chamber for HAPO

3. Acute Mountain Sickness (AMS): AMS is a milder form of altitude sickness characterised by symptoms such as headache, nausea, dizziness and fatigue. It can affect soldiers operating at high altitudes. Rest, hydration, gradual ascent and pain relief medications are typically recommended for managing AMS.

4. The extreme cold temperatures at high altitudes increased the risk of frostbite and hypothermia among soldiers.

5. Dehydration and hyponatremia occurred in high-altitude environments due to increased fluid loss and inadequate fluid intake

6. The combination of physical exertion, high altitude, and existing cardiac conditions with increased the risk of cardiac events such as heart attacks due to haemoconcentration and prothrombotic state resulting in pulmonary thromboembolism. Recognising the symptoms, providing oxygen, administering appropriate medications and facilitating timely evacuation were critical in managing such emergencies. [3]

Addressing high-altitude medical emergencies during the war required preventive measures, prompt recognition of symptoms and appropriate medical interventions.

Problems anticipated in high altitude combat trauma

High-altitude combat trauma presented unique challenges due to the combination of battlefield injuries and the physiological effects of high altitude. During the war, casualties treated in combat encompassed a range of injuries, including gunshot wounds, shrapnel injuries, blast injuries, fractures and other traumatic wounds.

The local inhabitants of Ladakh and other high-altitude areas have phenotypically

evolved to handle the altered physiology resulting from hypoxia and hypothermia. The troops posted in high altitudes have to go through a strict acclimatisation schedule to allow some homeostasis in the individuals' innate physiology. Due to the urgency of deployment, a breach in the acclimatisation protocols can lead to devastating complications at war.

High altitude, by definition, is any height above 8000 feet. Very high altitude is 12000-18000 feet and anything above 18000 feet is called extreme high altitude. Pulmonary arterial hypertension, pulmonary oedema, severe respiratory alkalosis, cerebral oedema and many other health issues can all result from high altitude. The stress of a combatant in fighting a war with such altered physiological conditions is unimaginable, giving rise to various medical and psychological issues. Harsh, extremely cold climate with temperatures dropping below -30C is not uncommon, giving rise to many cold injuries like chilblains and frostbite.

Anaesthesia practice in high altitude

Setting up operation theatres in an austere environment posed a significant challenge while administering anaesthesia at such high altitudes and we needed to keep in mind the physiological changes that occur in the body. Reduced atmospheric pressure can alter the pharmacokinetics and pharmacodynamics of anaesthetic agents. It is important for anaesthesiologists to carefully titrate the anaesthetic agents to achieve the desired effect while considering these altitude-related factors.

A range of medical strategies and techniques were needed to address the unique

anaesthesia requirements in high-altitude environments. These included:

1. **Oxygen stores:** Adequate oxygen supply was ensured.
2. **Anaesthetic agents and equipment:** Anaesthesia equipment and medications were carefully selected and modified as necessary to account for the effects of high altitude. Anaesthesiologists adjusted dosages and anaesthetic techniques to achieve the desired effect while considering altitude-related factors. [4]
3. **Monitoring equipment:** Continuous monitoring of vital signs, oxygen saturation levels and other parameters was crucial.

Trauma Management

Key aspects of trauma management: [5]

1. **From field hospitals, medical aid posts to advance dressing stations and a variety of temporary medical facilities with resuscitative, surgical and diagnostic capabilities were established near the conflict zones to provide immediate medical assistance.**
2. **Emergency surgeries:** Prompt surgical interventions were conducted to stabilise injured soldiers.
3. **Coordination with air support:** Close coordination between ground forces, medical teams, and air support ensured rapid and safe transportation of the injured to higher-level medical facilities.
4. **Enemy fire and hostile conditions:** Medical personnel often worked under the constant threat of enemy fire and in hostile conditions.

Regional Anaesthesia in high altitude

Regional anaesthesia techniques, such as nerve blocks, were utilised frequently to

provide anaesthesia and pain management during the war. The benefits of regional anaesthesia in high-altitude environments during high-altitude warfare are:

1. **Reduced systemic effects.**
2. **Preservation of respiratory function.**
3. **Simplified monitoring:** Compared to general anaesthesia, regional anaesthesia may require less extensive monitoring since the patient remains conscious.
4. **It potentially hastens recovery.**

The medical teams involved in trauma management combined general anaesthesia and regional anaesthesia techniques. Anaesthesia during such situations demands expertise, adaptability and quick decision-making from anaesthesiologists.

Casualty evacuation from high altitude [6]

Casualty evacuation (CASEVAC) was a critical aspect of the medical response. Evacuating injured soldiers from high-altitude areas posed significant challenges due to the rugged terrain, limited accessibility and hostile conditions (Figure 2). Here is an overview of the casualty evacuation process:

1. **Field evacuation:** Injured soldiers were initially stabilised and provided immediate medical care at the battlefield or nearby medical aid posts. This included measures for control of bleeding, administration of pain relief medications and management of life-threatening conditions.
2. **Local transportation:** Depending on the severity of the injuries and the location, injured soldiers were transported from the battlefield to nearby medical facilities using various means, such as stretcher-bearers, improvised vehicles or assistance from fellow soldiers.
3. **Helicopter evacuation:** Due to the challenging terrain, helicopters played a

crucial role in casualty evacuation from high-altitude areas.

4. Prioritisation and triage: In situations where multiple casualties needed evacuation, a triage system was implemented to prioritise the most critical cases for immediate evacuation.

5. Timely transportation: Prompt evacuation was essential to minimise the time between injury and receiving definitive medical care. Constant effort was made to ascertain the continuum of care during patient transfer.



Figure 2a: CASEVAC from forward area by stretcher



Figure 2b: CASEVAC by snowmobile

Tactical combat care and management

Tactical combat care and management in such military escapades focused on providing immediate medical attention to injured soldiers in the combat zone.

Here are some key aspects of tactical combat care and management:

1. Rapid medical assessment
2. Haemorrhage control
3. Airway management
4. Pain management
5. Resuscitation and stabilisation
6. Evacuation planning
7. Continuous training and adaptation



Figure 2c: CASEVAC by helicopter from Helipad



Figure 2d: CASEVAC by light helicopter by winching

Conclusion

The experience of anaesthesia practice during high altitude conflicts provided us valuable lessons that continue to inform and improve medical practices in such similar conflict situations. Some of the key lessons learned included adaptability and resourcefulness, acclimatisation and altitude considerations, team coordination and communication, efficient triage and prioritisation.

The traumatic nature of the conflict highlighted the importance of addressing the physical and psychological needs of injured soldiers.

The lessons learned from anaesthesia practice over the years have contributed to developing standardised protocols, advancements in anaesthesia equipment and refining anaesthesia practices in military and civilian settings. These lessons continue to inform and improve anaesthesia care worldwide in challenging environments and conflict situations.

Photographs courtesy:

Col Amit Dua, Col Shamik Paul and from archives of Dept of Anaesthesiology and critical care, AFMC, Pune.

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DRAMA IN REAL LIFE

A CHILD UNMUTED!

Dr. Chandrasekhar Krishnamurti,
Retired Professor in Anaesthesiology,
NRIIMS, Visakhapatnam
ISA No. S0468



This narrative is from my personal experience some years ago. I was sitting in the pre-anaesthetic check-up room, when a middle-aged man brought along his 6-year-old son for evaluation. The child was diagnosed with a pinhole meatus and posted for circumcision. He was mute but not deaf and otherwise normal with respect to all other parameters of physical and mental development.

As I delved further into the child's history, I was able to elicit from the father that he had a normal speech until a year ago when he was taken to a local ENT specialist for tonsillectomy. The doctor was an old-school practitioner who opted to operate under local anaesthesia. The reader can just as well imagine how terrified the child must have been after the anaesthetic was injected and when bleeding tissues were being extracted from his mouth. The child was so shocked after the procedure that he lost his speech. I suspect that there must have been an element of greed also by the ENT consultant to avoid sharing fees with an anaesthesiologist. With this story, I decided to try suggestion therapy under hypnosis. With the father in scrubs next to me and the child fasting all morning I prompted the child to vocalise the vowels first. When there was no response from the boy, I injected 5 mg aliquots of pentothal to keep a half-lid ptosis state.

As the child got over his scare, he began uttering some verbal sounds to the prompts.

Learning the whole family were devout worshippers of Lord Balaji of Tirupati, I next started suggesting that the child try saying his name. "Govinda" was the name I chose and, in a short time, the child was able to enunciate the Lord's name quite clearly. I concluded the session with the whole family ecstatic that their little member was unmuted! I then induced the child and had his surgery completed under inhalational anaesthesia, employing a laryngeal mask airway (LMA) to safeguard his newly functional vocal cords.

There was really no need for me to delve into this problem, but I had taken a course in hypnotherapy and had used this technique successfully in several instances earlier. One session was on two sailors discovered in a compromising position on board a ship when the Captain wanted to know if it was a casual one-time event or if they were actually gay. There was another instance where some classified documents went missing and no confessions were forthcoming, when I used hypnotherapy to nail the culprit.

Anaesthesiologists have a truly broad spectrum of practice and it is quite permissible for us to adopt suggestion therapy at induction to ensure smooth recoveries or for interrogation sans third-degree methods for humane and better outcomes.

Health, Fitness & Lifestyle for Anaesthesiologists



MEDITATION FOR THE ANAESTHESIOLOGIST

By Dr Aparna Budhakar

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ISA No: B1098



What does peace of the mind cost? Well, it costs just 20 minutes and a quiet corner.

Anaesthesia is an inherently stressful speciality, since the life of the patients is in our hands. We anaesthesiologists often work in a high-stress environment, dealing with emergencies and life-threatening situations. We need to be vigilant all the time and take rapid decisions during anaesthesia to avoid any complications. There are various reasons for stress, the most common being long and unpredictable working hours and night duties.

Nowadays, patients get admitted on the day of the procedure and this forces the anaesthesiologist to reach the hospital early. Investigations are done after admission. A derangement in investigations and the need for patient referral can derail the whole list and cause further delays. Many anaesthesiologists are actively involved in department administration activities along with clinical work which leads to additional working hours. Sometimes we do not know our work schedule in advance and at other times, surgery takes longer than expected. All this leads to inadequate time for ourselves and our families. It makes us difficult to plan events or give time for hobbies.

Another common cause of stress is high risk patients and supra-major surgeries which need additional expertise and vigilance.

If such patients come during night shifts, there is the additional stress of managing such patients with inadequate help and untrained tired staff.

Since teamwork is important for the smooth and safe management of patients, communication issues with colleagues and surgeons can make patient management stressful. Inadequate monitoring facilities or lack of availability of equipment for difficult intubation can make managing patients with co-morbidities extremely challenging.

Anaesthesiologists are also worried about medical errors and potential litigation. The speciality of Anaesthesiology continues to have one of the highest malpractice premiums, according to the Medscape Anaesthesiologist Malpractice Report 2021. The stress of remaining updated with the latest developments in anaesthesia, low remuneration, insecurity of work, difficult and demanding patients can further increase the anxiety.

Stress can affect our body and mind. We, as medical personnel are aware about

psychosomatic disorders like irritable bowel syndrome, acid reflux or peptic ulcers, fibromyalgia, migraines, tension headaches, hypertension, chronic fatigue syndrome, skin conditions like eczema or psoriasis.

Stress will also lead to a weakened immune system, insomnia, anxiety disorders, irritability, mood swings, substance abuse, burnout and even suicidal tendencies.

A lot of things can be done to reduce our stress levels. These include time management, prioritising tasks, learning to say 'NO' and taking the help of colleagues during the management of high-risk patients. Communicating with friends or colleagues about stress and taking help if required from experts is recommended. Other things which can be incorporated as stress management tools are spending time with family and friends, having hobbies, physical activities, breathing exercises and Meditation.

Meditation is one of the best and most effective stress management techniques. Last year itself there were more than 1000 research papers on the effectiveness of Meditation. It is scientifically proven that Meditation reduces stress and anxiety, enhances the feeling of well-being, improves sleep, resilience, boosts the immune system and reduces the levels of inflammatory markers. It improves focus and concentration. With regular meditation, we become aware of our own emotions which helps us to respond instead of reacting to challenging situations in our life.

Meditation activates the parasympathetic nervous system which is responsible for the body's "rest and digest" response.

This counters the sympathetic nervous system's "fight or flight" response, reducing stress and promoting relaxation.

It reduces the production of stress hormones like cortisol and adrenaline, normalises the heart rate, blood pressure and improves heart health.

Studies using brain imaging techniques such as magnetic resonance imaging (MRI) have shown that regular meditation is associated with structural and functional changes in the brain. There is increased activity in the pre-frontal cortex, which is associated with rational thinking and emotional regulation and there is decreased activity in the amygdala which is involved in the processing of emotions like fear and anxiety. There is also evidence of an increase in grey matter density in certain brain regions related to memory, learning and self-awareness. Meditation has been linked to neuroplastic changes, which refers to the ability of the brain to reorganise itself by forming new neural connections. These changes can lead to improvements in cognitive function and emotional processing.

Meditation can be easily incorporated in our daily schedule. It can be practised almost anywhere and at any time. It does not require special equipment or a specific location, thus making it a convenient stress management tool. One can start with as little as 5 minutes a day and then increase time up to 20 minutes. What one needs is a peaceful and quiet area where one can meditate without interruptions.



Meditation should be done in the sitting position either on the floor or a chair. The shoulders should be relaxed, spine erect and hands on the knees or lap. The eyes should be closed and attention should be paid to the breath.

Breath brings us to the present moment and stops the wondering of the mind towards the past or the future. In case a thought comes, taking the attention back to the breath helps one to get into meditation. Nonetheless, it is important to meditate regularly to experience its true benefits.

The role of Meditation in stress management is underestimated, underutilised and at times

is discarded as a myth in spite of huge scientific evidence. The sad part is that though Meditation originated in India thousands of years ago and has now reached different corners of the world, the country of its origin failed to recognise its importance. Many companies in the United States have adopted Meditation practices since they have understood that stress is an expensive threat to their balance sheet.

All said and done, the time has now come to incorporate Meditation in our daily lives to lead a joyful and stress-free life.



Conferences of ISA & ISA sponsored National CMEs (July 2023)

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'GURUPURNIMA' & 'DOCTORS DAY' CELEBRATIONS BY ISA NATIONAL

A special webinar was organised and eminent speakers and teachers like Dr. B Radhakrishnan, Dr. Manjushree Ray, Dr. Tej Kaul, Dr. Anjan Datta, Dr. Sadhana Kulkarni, Dr. Premnath Kotur, Dr. Deep Malviya and Dr. Venkatgiri Kalandoor were a part of it.

Dr. Manisha Katikar, the National GC member, talked about the history and inception of Doctors Day celebrations in India and abroad. Dr. Bajwa, the Hon. Secretary ISA National and Dr. Manoj Kumar, the Hon. Treasurer ISA National welcomed these senior teachers and took their blessings on the auspicious day of Gurupurnima.

The speakers shared their teaching experiences. The discussion was captivating and various topics like importance of discipline during anaesthesia training, maintaining work-life balance, advantages of private practice, strengthening of the student-teacher bond and creating everlasting memories and relationships were discussed.

The meeting concluded with a vote of thanks by Dr. Manoj Kumar.



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FRIDAY, 30 JUNE 2023
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DR. SADHANA KULKARNI DR. PREMATH KOTUR DR. DEEPAK MALVIYA

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PHOTOGRAPHS OF 'WORLD ENVIRONMENT DAY' CELEBRATIONS BY ISA NATIONAL

5TH JUNE 2023



Yuva Parnika (Youth Zone)



SOLUTIONS TO CROSSWORD

ON SUPRAGLOTTIC AIRWAY DEVICES (SGADs)

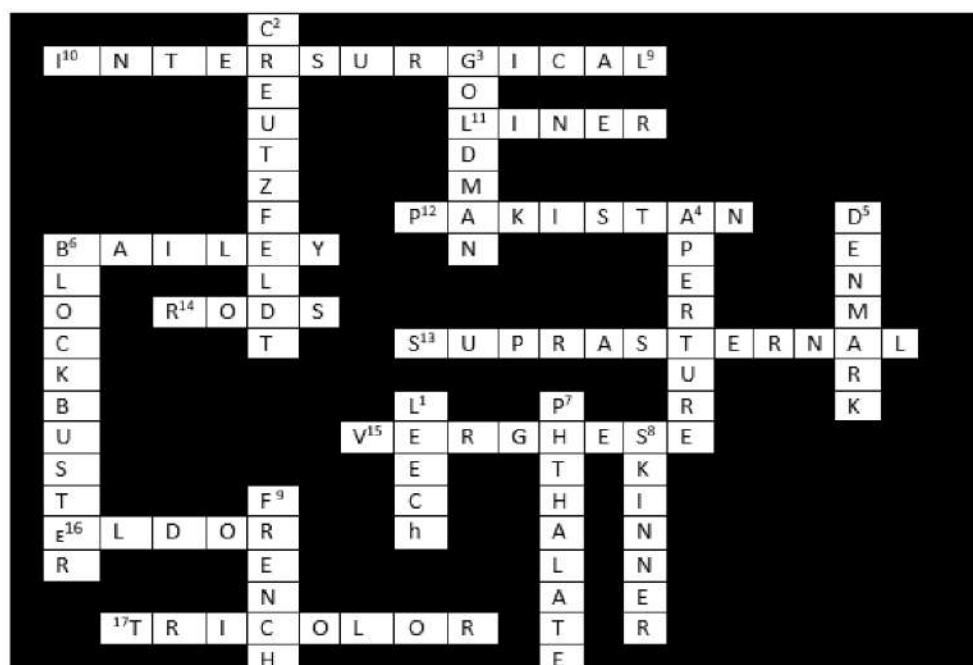
(Page 27 June 2023 issue of VAPOUR)

DOWN

1. [LEECH](#), a Canadian anaesthesiologist, devised the Pharyngeal Bulb Gasway in 1935. (5)
2. Innovation of LMA Unique came at a critical time with rising clinician concern over the transmission of life-threatening prion protein diseases, such as [CREUTZFELDT](#) disease. (11)
3. Sir Archie Brain based his supraglottic airway on the [GOLDMAN](#) dental mask. (7)
4. [APERTURE](#) bars were present in the original classic LMA to prevent the epiglottic infolding. (8)
5. Ambu AuraGain was manufactured in [DENMARK](#). (7)
6. Soft Parker pen tip endotracheal tube is used to intubate with [BLOCKBUSTER](#) type of LMA. (11)
7. Ambu AuraGain was previously made of [PHTHALATE](#)-free material (9)
8. Gastro LMA was devised by [SKINNER](#). (7)
9. Combitube is available in various sizes, measured in [FRENCH](#) units. (6)

ACROSS

6. The placement of a LMA following endotracheal extubation during emergence is called [BAILEY](#) manoeuvre. (6)
10. i- GEL was launched by [INTERSURGICAL](#) Company. (13)
11. Full form of SLIPA is Streamlined [LINER](#) of the Pharynx airway. (5)
12. Inventor of i-gel is from which country. (8) [PAKISTAN](#)
13. Other name for 'Brimacombe bounce' is [SUPRASTERNAL NOTCH TAP](#). (12)
14. Mnemonic used for risk factors for difficult "rescue" with supraglottic device is [RODS](#). (4)
15. Chandy manoeuvre is a manoeuvre that is crucial in maximising the chances of successful intubation via the ILMA and was first described by Chandy [VERGHESE](#). (8)
16. [ELDOR](#) Laryngeal airway is an earlier device which had an elongated tube approximately 34 cm long, made of plastic. (5)
17. For LMA C Trach, the [TRI-COLOR](#) concept of LCD is used for best visualisation. (8)



MUSINGS OF A 'YUVA' MILITARY ANAESTHESIOLOGIST

By

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A very fine quote from Winston Churchill's first book 'The story of Malakand Field Force 1897' reads "The spectacle of a doctor in action among soldiers in equal danger with equal courage, saving lives where all others are taking them, allaying fear where all others are causing it, is one which must always seem glorious whether to God or to men." This quote added with the sheer wit, skills and resilience of Dr Watson, the famous friend of Sherlock Holmes is perhaps what inspired a person like me to choose the military as a career being a medic.

I will narrate an incident that occurred when I was deployed as a young medical officer during the monsoon of July 2016 in the Amarnath Yatra to provide medical cover to the 'yatris'(travellers) as well as the soldiers guarding them. Those were tumultuous times, as a dreaded terrorist had been recently neutralised by the Army and the valley was in a state of wild rage. I had just settled down in my tent that was located in the beautiful valleys and hills of Pahalgam, Kashmir after finishing my routine work in the outpatient department (OPD). The silence of the evening was broken by the tense voices of soldiers saying "Doctor Saab ko jaldi bulao, apne bandey ko goli lagi hai"!! ("Call the doctor quickly; one of our boys has been shot!!").

It turned out that a young jawan in his early twenties had been shot in his chest and abdomen in an encounter with terrorists. I gave him all the basic first aid that was possible at that point and raised an urgent call for casualty evacuation by helicopter to the famed 92 Base Hospital in Srinagar. By the time we reached 92 BH, the young jawan had become silent with shallow breathing and was not responding to my commands. I dreaded that I might lose him as he had already lost a lot of blood.

As he was brought to the MI Room, (as casualty is called in the army hospitals), my first encounter was with a very different type of doctor whom most of the medical fraternity 'revere' and about whom the common man is 'clueless'; nevertheless, he was the anaesthesiologist commonly referred to as "Behoshiwale doctor" ('unconsciousness producing doctor') in our country. I watched meekly standing at the foot-end of the bed as this man passed brief, crisp instructions to the emergency team, expertly slipped in an endotracheal tube, secured two wide bore intravenous (IV) lines in a flash; whereas, I had managed a 20G cannula with great difficulty. He also passed in a chest tube with equal agility. It was as though time had come to a

standstill for me as I intently watched him. Within minutes, the erratic sounds of the bedside monitor became calm and rhythmic and sort of meditative. The soldier had been stabilised and was soon shifted to the operation theatre (OT) for definitive surgery. I had the opportunity to meet this injured jawan after 5 weeks when I found him sipping tea in the ward of the same hospital. I asked him what he remembered and as usual, everyone 'except the different Doctor' I described were part of his memory.

I soon realised that there is only one Doctor who can stare death in the face and challenge it. He/she is the anaesthesiologist and I decided to become one.

The kind of scenario that I have described is a common occurrence in the Armed Forces Medical Services. The anaesthesiologists of the Indian Army's "Army Medical Corps" form a crack team of emergency doctors with varied deployment ranging from the heights of the Siachen glacier, to the marshlands of the Northeast, to the brazen sands of Rajasthan, to the islands of Andaman, to the warships of the navy in the high seas and also to the top-notch tertiary care hospitals of the Indian Armed Forces.

I would like to recall here a recent incident that showcases the role of the anaesthesiologist as a saviour in extreme adverse conditions. This happened near one of the world's highest battlefields, that is, the Siachen Glacier. A bus carrying 26 soldiers skidded off the road and fell into a deep ravine in the Shyok River (Figure 1). The incident had local and national ramifications as brought out by the headlines in national media.

All 26 casualties were evacuated to the Army's nearest Field Hospital (Figure 2) wherein a young anaesthesiologist with his surgical team sprang into action.



Figure 1: Recovery of casualties from Shyok River



Figure 2: Forward Field Hospital in the world's highest battlefield

Out of 26 casualties received in the hospital, seven were brought in dead. Five were declared Priority 1(P1), and 14 were Priority 2(P2) casualty. All P1 were shifted to the intensive care unit (ICU) and the high dependency unit (HDU). P4 patients were shifted to the isolation ward. The most severe P1 casualty was a 22-year-old soldier with craniofacial trauma. Primary survey was carried out and the patient was in stage 1 of hypovolaemic shock.

The patient was conscious and the airway was filled with blood along with a restricted mouth opening and active bleeding. A 16G IV cannula was inserted in the basilic vein and IV fluids were rushed. The patient had an anatomically difficult airway because of manual in-line

stabilisation of the neck and a blood-filled airway. The dental surgeon promptly started to pack the bleeding palate and the fracture was fixed with wire. Meanwhile the patient's vital parameters were maintained along with oral suction and intermittent high flow oxygenation with face mask. Emergency airway access instruments were readied.

Once some haemostasis was achieved, it was decided to try tracheal intubation as per 2022 American Society of Anesthesiologists (ASA) guidelines for the difficult airway. The glottis was oedematous and there were blood clots in the oral cavity. The patient was intubated awake with fentanyl support at the third attempt.

Central venous access was obtained in the right subclavian vein after stabilisation and putting the patient on invasive ventilatory support. Secondary survey was carried out and a non-contrast computed tomography (CT) of the head and cervical spine was done to rule out intracerebral haemorrhage and spine fractures. The patient had a Lefort II fracture. Later, the fractures were stabilised by wire fixation in the OT.

Two P1 patients had a haemopneumothorax that was detected in focused assessment for sonography (FAST) and confirmed with CT scan for which chest tubes were also inserted

Meanwhile, help started arriving by road and air and the P2 casualties were attended to (Figure 3). A decision was taken to airlift all the casualties to Command Hospital, Chandigarh after stabilisation of the situation.



Figure 4: Patient Transfer Unit



Figure 5.1: Evacuation of casualties by air to Chandigarh



Figure 5.2: Air-lifting of casualties

All the patients were airlifted to the army's tertiary care hospital at Chandigarh (Figures 5.1 & 5.2).

Anaesthesiologists are deployed in various military medical centres in Counter Insurgency



Figure 3: Receiving of casualties by road

areas, in places across the seas in Missions of the United Nations and form an integral part of disaster management during natural or man-made disasters like the one that was seen in OPERATION DOST to aid earthquake victims in Turkey. They are the 'go-to' Doctors in the Armed Forces, the equivalent of Special Forces in the infantry.

The beauty of being a doctor, more so an anaesthesiologist in the army is that he/she is as good with guns and bullets as skilled in providing anaesthesia and critical care. The anaesthesiologist has the power to save those who protect and the power to eliminate those who are a threat to the nation if the need arises.

Simply put, the anaesthesiologist in the defence services has the two most potent weapons to wield- THE LARYNGOSCOPE as well as the AK-47!

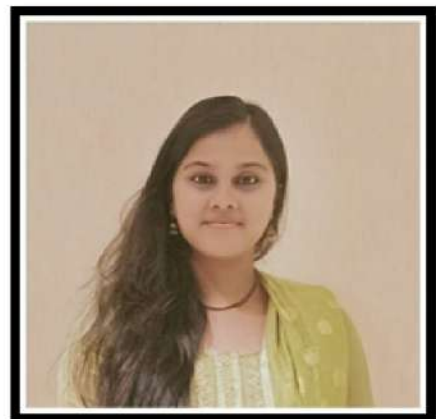
JAI HIND! VANDE MATARAM!

ACKNOWLEDGEMENTS

I would like to express my gratitude to Lt Col (Dr) Rijesh Unnithan and Dr. Shalini M for their valuable inputs including the photographs and experiences.



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WARTIME ANAESTHESIA MEMORABILIA QUIZ



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Questions

1. As a respiratory physiologist, he invented gas and oxygen anaesthesia and devised his own machine while serving as an anaesthetist in the Royal Army Medical Corps in the first world war. Identify this physician.



2. This device was used by the Russian army to administer rectal ether anaesthesia. The diagram shows a syringe encased in a metal cylinder containing water at 50-62°C. Ether is poured into the syringe, the lid (shown open above the cylinder) closed and ether vapour can then be passed through the central metal rod to a flexible hose which is inserted into the rectum. Identify this device.



3. The first military use of ether by US army is credited by Dr Edward Barton who had brought ether and administration apparatus with him. When and where was it administered?

4. The treating of facial wounds in casualties at the Queen's Hospital for facial and jaw injuries at Sidcup, highlighted the possibility of use of this device, a technique that had a drastic effect on the administration of anaesthetics during First World War (1914-18). What was this device?



5. Which anaesthetic agent was administered with this device during the Civil war?



6. One of these was recommended for military use in the tropics during World War II, where the climate made it impractical to administer ether by the open-drop method. Who invented this device?



7. Which of the following journals was NOT founded during the interwar period?



8. Which was the anaesthetic that caused many deaths due to hypovolaemic shock at Pearl Harbour?



9. In the World War I, this was the drug that was used in 'hypo units' & 'syringes' that a soldier could administer to oneself with one hand. What was the drug used?

10. What is the name of the training given in the '90 day Wonders', a training programme in the United States?

11. Who was this person of repute who served as 1st Lieutenant in the US army and was known as 'motor cycle anaesthetist'?

12. Name a pioneer in military surgery who introduced the retrieval system using carts known as 'Flying ambulances' for shifting wounded French soldiers to a central casualty station for immediate surgery. He was Napoleon's chief surgeon. He also performed painless amputations using ice, on the battlefield.

13. A highly portable and robust anaesthesia delivery system that was used for medical support to airborne operations. It had a self-inflating bag, a draw-over vaporiser, a supplemental oxygen regulator and a ventilator. Ambient air was used as the primary carrier gas in it. What was this device?

14. Name a pioneer in anaesthesia who introduced gas-oxygen into France for use in anaesthetising wounded soldiers in the First World War.

15. A pioneer in anaesthesia who served with the Irish Guards at the battle of Loos. Who was this pioneer?



16. During the Second World War, he was consultant pharmacologist to the armed forces. His work led to the production of a synthetic

plasma volume expander named polyvinyl pyrrolidone which saved many lives. He made intravenous induction a safe and practical procedure.

17. He joined the Royal Flying Corps and became a prisoner of war. He became a successful dental anaesthetist and built up a renowned department of Anaesthetics at Oxford



18. During this war, it was found that the cost of air-lifting heavy nitrous oxide cylinders was very high. The concept of air-oxygen-inhalation anaesthesia came up. Name this war.

Answers

1. Sir Geoffrey Marshall

2. Pirogoff's apparatus

3. Buena Vista in Mexico on 22 February 1847.

4. Endotracheal tube

5. Chloroform

6. Paluel J. Flagg, M.D. (1886-1970) invented the Flagg Can.

7. The interwar period also saw the emergence of the first academic journals on the subject, with Anesthesia & Analgesia (1922), the British Journal of Anaesthesia (1923), and Anesthesiology (1940). The American Society of Anesthesiologists was founded in 1935 and it is not a journal.

8. Thiopentone

9. Morphine

10. Wartime Anaesthesiology

11. Arthur Guedel

12. Dominique Larrey

13. Triservice Apparatus

14. Henry Edmund Gaskin Boyle

15. Sir Ivan Magill

16. Helmut Weese

17. Sir Robert Macintosh

18. The Falkland War

*My Pages: Art,
Culture & Literature*



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IN TIME OUT TIME

Who decides our 'in time'
And who decides the 'time out'
Who decides which soul
Will get which womb
And which body will be lifeless
And left in a tomb,
One thing is sure
we all enter and exit
Enter through the womb
But Exits are many!
Game of life
Is full of mystery
Our arrival is announced
and death is a striking story,
Yet we fail
To hit the nail
To live each moment
And set the sail,



Life is such
If we find no purpose
We are dead, no matter what
Our beating heart does,
We pray fervently
We love God loads
Yet we wish secretly
To delay visiting his abode,
We built a maze
Of relations and love
We deal with life
But to death we have to bow,
Supreme Power rules
It governs our nest
A moment full of life
And Dead the next,
Man cannot win
This race of life
Cords are cut by
Some heavenly midwife!
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EXOTIC PHOTOGRAPHS BY OUR ANAESTHESIOLOGISTS

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PAIRED WINGS



EXOTIC PHOTOGRAPHS BY OUR ANAESTHESIOLOGISTS

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ROYAL RETREAT

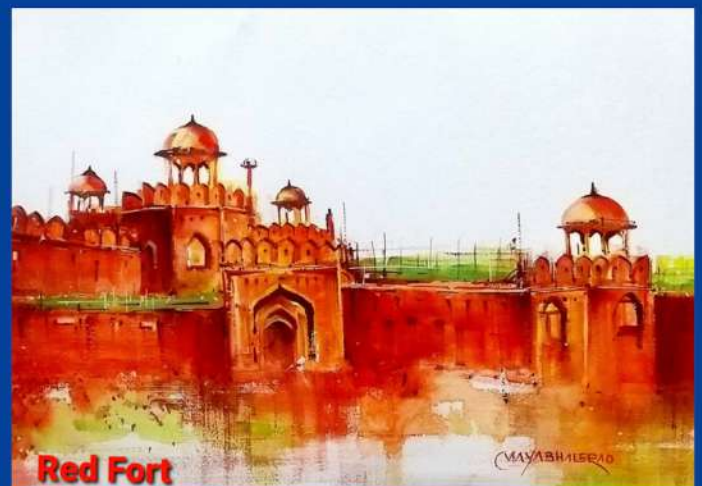


WATER COLOUR PAINTINGS (INDEPENDENCE DAY SPECIAL)

Dr. Maya Bhalerao

Consultant Anaesthesiologist, Pimpri-Chinchwad

ISA No: M 1208



KALEIDOSCOPE

A TRYST WITH

DR. VASANTHA KUMAR K R

Consultant Anaesthesiologist, Actor, Motivational speaker, Philanthropist. Received "Life Time Achievement Award" from Peace Global Academy, USA in 2018. Honoured with "Sri Adi Shankaracharya Seva Ratna Award" by Sanatana Sampratistana & Karnataka Sena Pade.



Hello sir!

Most of us are fascinated by the film industry. It would be really interesting to know about your stint with the silver screen. Kindly share some of your experiences.

1) Since when are you into acting?

I am into acting from an early age of 15 years.

2) In how many films have you acted? Which are those films and which language films are they?

I have acted in 6 Kannada films including my son's 3 short films.

3) Have you worked in theatres too? Which one do you find more interesting?

Everyday, I do go to the "Operation Theatre" which is no less than a drama in itself as an anaesthesiologist. I used to perform in theatres when I was 16 years. During MBBS days I used to write and direct skits. I still have a huge passion for that.

4) Have you ever thought of switching professions?

Oh yes! I definitely have. But, I get the satisfaction of keeping that as a passion and serving as a professional.

5) Any dream role that you would like to play?

My dream role is to play a silent villain who gets his job done only through his soft words unlike the huge fights.

6) Did you have any formal training?

No. I did not have formal training in acting. My father was a theatre artist while also being a Range Forest Officer. Two of my cousins (Jayaram & Rajesh Kashyap) are into theatre full time and also have acted in National Best Film and International Award winning films like "Thabarana Kathe, Bannada Vesha, Koli Esru". I was inspired by all of this. I feel I have passed my inspiration to my son as well who is a film-maker now.

7) What kind of films do you like to act in?

I am open to act in any kind of films. Be it small indie projects or big commercial films. I just want to have the joy of acting. That's all.

8) How do you maintain balance between your profession and hobby?

I feel MEDITATION is the key for the balance mentally. Other activities like Painting, Singing, giving lectures on Spirituality & Health also gives me enormous strength. Professionally, I am working as a Professor in Adichunchanagiri Institute of Medical Sciences, and teaching and training postgraduate students more than 30 different types of regional Blocks. I have a special interest in alternative methods of pain relief & paediatric anaesthesia. Having these hobbies keeps me grounded and relieves me of my stress so that I can work much efficiently in the operation theatre as well as in drama theatres.

9) You are also involved with philanthropic activities; will you please highlight those?

Surely! I have served as an anaesthesiologist in "MISSION for VISION" - Paediatric Eye Surgeries @ THE GAMBIA (West Africa) in 2017 & 2019. Also served as an Anaesthesiologist in "SMILEY" - Cleft Lip & Palate Surgeries in Children, in SOMALIA, (East Africa) & Katihar, Bihar, India in 2022.

Apart from these activities, I am also a regular resource person to talk on SPIRITUALITY, MOTIVATION, INDIAN TRADITIONS, LIFE MANAGEMENT & HEALTH, at various national and international conferences.

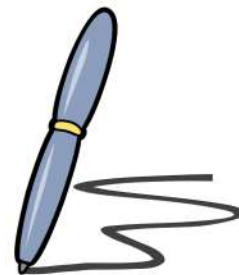
Thank you.

We are sure that many would be inspired by your multi-dimensional personality.

Editorial Team, 'VAPOUR'



INVITATION TO CONTRIBUTE



‘Vapour’, the official newsletter of the Indian Society of Anaesthesiologists invites contribution of articles originally written by ISA members (Life and associate). The articles can be in the form of interesting case reports for discussion, articles on topics of current clinical relevance, photo-essays, articles on medicolegal /health/ financial/extracurricular issues of interest to the anaesthesiologists. Original literary works such as poems, funny cartoons or paintings on topics of anaesthesia are also welcome. Information about extraordinary achievements /experiences of ISA members, book publication can be sent.

The articles should be brief and written in font Times New Roman 12-14 size and presented in Microsoft office word document (rtf/doc files). Plagiarism and violation of copyrights should be strictly avoided. The articles should be e-mailed to isanhqvapour@yahoo.com with a covering letter addressed to the Honorary Secretary ISA National.

Dr Sukhminder Jit Singh Bajwa

Honorary Secretary ISA National & Editor-in-Chief

VAPOUR

(The official newsletter of the ISA National)

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