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Journal of Society of Anesthesiologists of Nepal

Special Article

Evolution of Anesthesia in Nepal: A historical perspective.

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Abstract

Development and practice of anesthesia in Nepal has undergone its twists and turns in the past. This article briefly describes the history of Anesthesia in Nepal, its development to current days practice, evolution of anesthesiology as a subject and society of Anesthesiologists as a scientific community in medical field of Nepal.

Keywords: Anesthesia; History; Nepal.

Article History

Received	17th February 2014
Accepted	27th February 2014
Published on print	1st March 2014
Published online	24th December 2014

How to cite this article: Amatya R. Evolution of Anesthesia in Nepal: A historical perspective. JSAN 2014;1:3-6.

Nepal is a land locked country that lies between India and Tibet (China) with Kathmandu as its capital and a population of 29 million. There is a tremendous lack of access and availability to operative services leading to morbidity and mortality. Till the end of 1990 the mortality and morbidity due to anesthesia was quite high. It was almost 1: 10000. Now anesthesia morbidity and mortality, while acceptable, are not zero.[1] The figure has currently come down to around 1: 250000.

The development of allopathic medicine started in Bir Hospital which was founded in 1888 – 1889. Since 1950 mission hospitals had been established including Shanta Bhawan Hospital in Kathmandu and rural area British military hospital of Dharan "Ghopa camp", Eastern zone. Three major hospitals were built with foreign aid - Maternity Hospital in 1959, Kanti Children Hospital in 1962, Tribhuvan University Teaching Hospital in 1984. During the early period of the Rana regime the only doctors in Nepal were those who had come from India, some with MBBS degree and the majority with the Licensed Medical Faculty (LMF) qualification from a four years course in India before and during the Second World War.

There is very little evidence regarding the use of anesthesia in Nepal before 1933. In those days, either a doctor or paramedical staffs who could pour drop after drop of chloroform or ether were considered an anesthetist. Usually the surgeons carried out anesthesia by delegating untrained juniors or paramedics to do the job.[2]

In 1955, Dr Bhawani Bhakta Singh Pradhan was the first Post graduate Diploma holder Anesthetist of Nepal. He started his practice four years before a first qualified surgeon graduated. Anesthesia equipment was still very basic in 1955 when Singh Pradhan introduced endotracheal intubation in Nepal.[3] He used to practice open drop ether in

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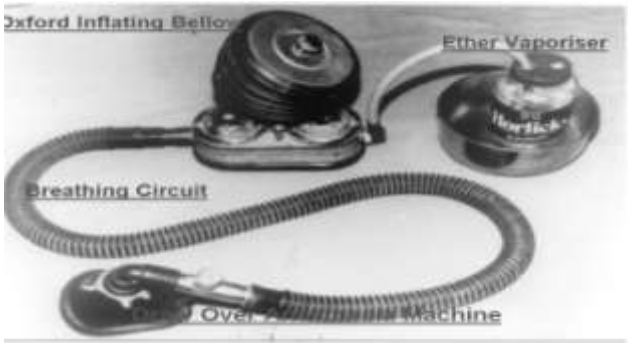
a Schimmelbusch mask and spinal anesthesia. He improvised a Horlick's bottle, the top of which had an inlet orifice for air, outlet orifice with rubber tubing, oxford inflating bellows, corrugated tubing. In winter, the bottle was placed in the bowl of hot water that needed frequent replenishing; otherwise the temperature of ether would fall to that level at which anesthesia cannot be maintained. In 1962, he anaesthetized a patient with this circuit and endotracheal intubation for the intracranial surgery (removal of a pituitary tumor).[4]

Figure 1: The Horlick's Bottle Vaporizer



In 1963 Sir Robert Macintosh, Oxford, UK visited Kathmandu on the way to India and he encouraged the use of Epstein Macontosh Oxford Vaporiser (EMO) which is a calibrated ether vaporizer. Dr Pushpa Das Shrestha joined Military Hospital in 1964 as an anesthetist. In 1965, Dr GP Rajlawot anesthetized a patient for Closed Mitral Valvotomy, beginning of cardiac anesthesia in Nepal, using an Indian Boyle machine with Ether bottle vaporizer.[5]

In 1966, Dr Narendra Bahadur Rana was the first anaesthetist to use gallamine or curare as a muscle relaxant in combination with draw over technique using ether to provide balanced anesthesia. He had arranged a separate oxygen store and gas pipe line to the operation theatre. Dr Triratna Man Tuladhar joined Kanti Children's Hospital in 1967. In late 1960s, two new Boyle's anaesthetic machines, East Radcliffe and Howells ventilators, ECG monitoring with defibrillator became available in Bir Hospital.

The first oxygen plant in the country was established in 1972. Although the Boyle's machine was there, it could not be used regularly because only two oxygen and one nitrous oxide cylinders were available. Due to lack of oxygen cylinders and proper roads, supplying O2 in cylinders to all peripheral hospitals remained very difficult. In order to solve the problem, oxygen concentrator was introduced in 1985.[6] But the first concentrator delivered a low percentage of O2 and broke down within six months.[7] Till late 1980's, Ether and EMO system usually supplemented with halothane from an oxford miniature vaporizer "OMV" continued to be the standard equipment to provide anesthesia in most of the hospitals at the central and peripherial level. Oxygen and Nitrous oxide cylinders were imported from India during those days. Dr Bisharad Man Shrestha developed an ether vaporizer from locally available metal sheet based on EMO principle while working in Biratnagar.

In 1960s, the inhalational agents available were Chloroform, Ether and Trichloroethylene. Halothane was introduced in 1970 and was very expensive. Among the intravenous anaesthetic agents, Thiopentone Sodium, Suxamethonium, Gallmine and Curarae were available. Similarly procaine was the only local anaesthetic avalaible for spinal anesthesia. Lidocaine became available several years later. There used to be shortage of not only the anesthetic drugs, but also of oxygen supply in the hospitals.

Despite government's initiation and persuasion, from 1964 to 1984, very few doctors went abroad for training in anesthesia. The British Government sponsored technical and financial help for anesthesia training but this did not solve the acute shortage of anesthetists in Nepal. About a dozen were trained in United Kingdom but only a few of them returned to Nepal following the completion of their training.

In 1984 there were eighty surgeons and only seven anesthesiologists in the country. Their surgical skills could not be exploited properly because of the bottle neck in anesthesia service. The Ministry of Health recognized the critical shortage of anaesthesiologists. This crisis was in part due to low profile credited to this speciality. In 1984,

Ministry of Health of His Majesty Government of Nepal and Institute of Medicine, Tribhuvan University resolved to address the problem of anesthesia manpower by providing an in-country one year Post graduate Diploma in anesthesia (DA) programe in collaboration with the University of Calgary, Canada.[8]

The year 1985 marked the beginning of a new era in the history of development of human resources in anesthesia in the country.[9] Dr Roshana Amatya was appointed as Associate Professor and Head of Department of Anaesthesiology, Institute of Medicine, Tribhuvan University Teaching Hospital to establish Diploma in anesthesiology programme. Fourty six anesthesiologists completed training from 1985 to 1994.[10] It was a tremendous increase in human resources in those nine years. Since then anesthesia service has been provided by anaesthesiologists in most of the hospitals inside and outside the valley. The introduction of some financial incentive and Post graduate DA programe stimulated an interest to attract the doctors to this specialty. In 1989, to keep pace with the development of surgical subspecialties, three seniors anesthesiologists were send for subspecialty training in Neuro-anesthesia and Intesive Care in UK and Cardiac anesthesia in Australia.[11]

Post graduate medical education coordination committee (PGMECC) was established as a joint venture between the Institute of medicine (IOM), Tribhuvan University and Ministry of Health to start post graduate training programs in various specialties. Another academic development was the beginning of three years Doctor of Medicine (MD) in anesthesiology in 1996 by PGMECC.[12] The objective of this program was to maintain academic status as well as to prevent the brain drain of anesthesiologists. The first batch of MD Anesthesiology candidates graduated in April 1999.[13] Professor Roger Maltby and Dennis Reid reviewed the program according to Canadian Royal College guidelines. Later, in 1999, MD Anesthesiology Program was started in BP Koirala Institute of Health Sciences, Dharan. With the establishment of National Academy of Medical Science (NAMS) in 2003, NAMS and IOM conducted MD Anesthesiology independently.[14] In recent years, 7 private medical colleges have started MD Anesthesiology program. Now the total intake for post-graduation in MD Anesthesiology has reached 35 residents every year.

Currently around 200 Anesthesiologists are working in the country. However, anesthesia services are limited to the hospitals inside the Kathmandu Valley, 14 zonal hospitals and few district hospitals. The anesthesia services have not reached most of the district hospitals and remote communities yet. In the past few years anesthetic assistants have been trained to assist anesthesiologists and have been providing services at certain district hospitals of the country. To fulfill the need of human resources, the Government of Nepal should develop a national policy to increase the number of intake of residents, should create post of Anesthesiologists as well as facilities to work. The curriculum should include a compulsory community posting to the district hospitals.

With the advancement of science and technology and introduction of new drugs, there have been significant changes in the development of subspecialty services. Cardiothoracic, Vascular, Transplant surgery, Neuro surgery, Onco surgery, Urosurgery, Plastic surgery and Intensive Care Units (ICU) are providing care with the concept of multidisciplinary and multimodal approach. Most of the ICUs are open system because of lack of intensivists at present. So Doctorate in Medicine (DM) in critical care medicine program was started in October 2012 in IOM with the concept of creating intensivisits in the country.

New technologies like USG guided procedures, transesophageal echocardiography, acute pain services are in practice in referral institutes. Palliative care and Chronic pain management services are in primitive state and needs to develop in future. The status of anesthesia has grown from an adjunct to safe surgery to a complex specialty in the care of critically ill patients and acute and chronic pain services.

The First Anesthesia Symposium was organized in 1986 with the initiation of Canadian faculties. Then, Society of Anesthesiologists (SAN) was formed in 1987 under the Chairmanship of Dr Puspa Das Shrestha. SAN was accepted as a member of WFSA at the 9th World Congress in Washington, DC. Four years later two members participated in the World Congress first time at The Hauge in Netherland. The society of anesthesiologists has contributed a lot to uplift the professional status by organizing the conferences and congress at national and international level. SAN has been conducting various educational and organizational activities like monthly CMEs, National and International Conferences, Celebration of World Anesthesia Day, Publication of news letter and Souvenirs, Anesthesia practice safety guidelines etc for the development of Anesthesiology in Nepal.[15] The society has

conducted SAARC AA in 2007 and SAARC critical care congress in 2010 and preparing for SAARC AA in 2015. The members are working hard to publish the Journal of Society of Anesthesiologists of Nepal in 2013. The concept of research are still lacking except the students thesis because of lack of funding and culture. Research Council, Research department of IOM, University grants commission and John Sandison grants are encouraging to conduct research.

Although SAN and Government of Nepal do not recognize the concept of Nurse Anesthetist, some mission hospitals rely on trained Anesthetic Nurses. In 1980's Dr Tom Fell of Olympia, Washington trained nurses at the misson hospital in Patan, Lalitpur.[16] Regular training of paramedics and nurses as anesthetic assistants started in different hospitals of Kathmandu with the aim to assist anesthesiologists but not as a service provider. The duration of the course varied at different institutions from three months to one year.

The History of anesthesia is very short in Nepal and tremendous achievements have been accomplished within the past two decades to meet the advancement of surgical subspecialties. The success of credit goes to the anesthesiologists and different organizations. Canadian faculties contributed in the establishment of Postgraduate diploma as well as MD in anesthesia through Canadian society of Anesthesia. The British council has helped training manpower in anesthesia and subspecilities e.g ICU, Neuroanesthesia etc. Similarly World federation of society of Anesthesiologists (WFSA) has helped providing resource people and experts. Our Local faculties have contributed a lot with their dedication and determination to achieve the current scenario in the country today.

References

1. Macintosh RR. Saved by the Flagg. In: Atkinson RS, Boulton TB (Eds.) The history of anaesthesia. Royal Society of Medicine, London; 1989:8-9.
2. Shrestha BM, Rana NB, Maltby JR. The history and development of anaesthesia in Nepal. The History of Anaesthesia Society Proceedings 2000; 28: 97-101.
3. Rana NB, Shrestha BM, Maltby JR. History and development of anaesthesia in Nepal. Indian J Anaesth 1993;41:140-5.
4. Singh BB. Endo-Tracheal Anesthesia at Bir Hospital Kathmandu,Nepal. J Nepal Med Assoc 1968;6:59-63.
5. Rana NB, Shrestha BM, MaltbyJR. History of anesthesiology in Nepal. Anaesthesia History Association Newsletter 1993;11:57-61.
6. Shrestha BM, Singh BB, Gautam MP, Chand MB.The oxygen concentrator is a suitable alternative to oxygen cylinders in Nepal. Can J Anesth 2002;49:8-12.
7. Swar BB. Oxygen concentrators in Nepal, how useful and reliable? 5th Symposium SAN Souvenir May 15-16, 1992:33-5.
8. Maltby JR, Rana NB, Amatya R, Shrestha BM. Anaesthesia training in Nepal. Canadian Journal of Anaesthesia 1987;34:51-5.
9. Maltby JR, Amatya R, Rana NB, Shrestha BM, Tuladhar TM, McCaughey TJ. Anaesthesia Training and development in Nepal 1985 -1990. Canadian Journal of Anaesthesia 1991;38:105-10.
10. Maltby JR, Rana NB. Helping to establish anaesthesia training and development in Nepal. World Anaesthesia 1997;1:7-8.
11. Tweed WA, Amatya R, Tuladhar TM, Maltby JR, Gurung CK, McCaughey TJ. Anaesthesia services and the education of anaesthetists in Nepal: a model for sustainable development? Can J Anaesth 1993;40:993-9.
12. Maltby JR, Rana NB. Helping to establish anaesthesia training and development in Nepal. World Anaesthesia 1997;1:7-8.
13. Shrestha BM. Anesthesia in Nepal. KUMJ 2003;2:177-81.
14. Shrestha BM, Rana NB. Training and development of anesthesia in Nepal - 1985 to 2005. Can J Anesth 2006;53:339-43.
15. Marhatta MN. Current status of anesthesiology in Nepal. In: Bulletin, 14th SANCON. 2013 April 5-6; Kathmandu, Nepal.
16. Fell TE. Experiences with nurse anaesthesia in Nepal 1982-1983. J Nep Med Assoc 1983;21(Souvenir issue):94-6.