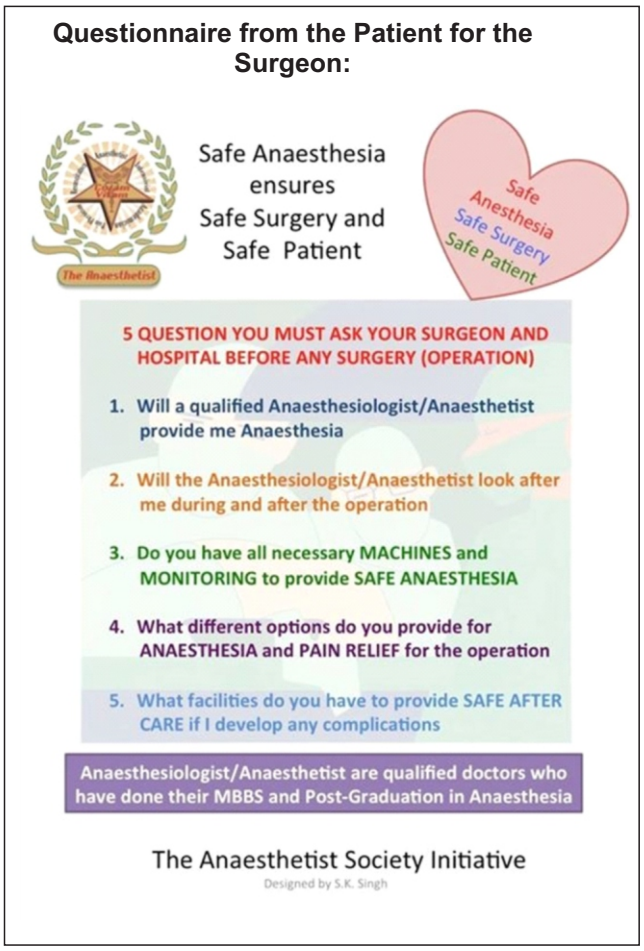
Safety in Anaesthesia

Pallavi Lande-Marghade

The practice of Anesthesia is fundamental to the practice of medicine. According to the Institute of Medicine, Anaesthesia practice is among the most successful specialties in assuring patient safety and reducing mortality. Death due to administration of anaesthesia has come down from 1 per 5000 anaesthesia administered to 1 death per 2,00,000-3,00,000 [1]. In 1987 CEPOD (first Confidential Enquiry into Perioperative Deaths) revealed that very few deaths were actually due to the direct result of general anaesthesia. To compare one hour of being under anaesthesia, with say one hour spent in traffic or one hour of flying; the risk of dying is about 1 in 10,000 in traffic, about 1 in 1000, 000 in an aircraft and 1 in 1,00,000-5,00,000 under anaesthesia [2]
According to Webster medical dictionary, safe is defined as not causing harm or injury, having a low incidence of adverse reactions and significant side effects when adequate instructions for use are given, having a low potential for harm under conditions of widespread availability [3].
Safety does not reside in a person, device or department but emerges from the interactions of the components of the system.4
The World Federation of Anaesthesiologists (WFSA) first approved the standards of safe practice of anaesthesia in 1962. These standards have been updated in 2008 and 2010 respectively [5]. These objectives have been achieved in economically sound areas of the world. However this still remains a challenge in resource poor areas of the world [6,7,8].
The principal reasons in the resource poor areas are critical shortage of trained anaesthesia providers [9]. In such situations, anaesthesia may be administered by an individual with no anaesthesia training at all or operating surgeon may administer anesthesia. In either case the patient is at significant risk for mortality and morbidity [10] Lack of supervision of residents whose training is limited is also a cited reason [10-12]. Accredited training for anaesthesiologist and retention of trained anaesthesia providers is also a huge problem. Attitude of anaesthesiologists is also a deterring factor where one anaesthesiologist-one case norm is not strictly followed.
In advanced or tertiary centers, complexity of healthcare organisations makes them error prone environments [13]. Failure of communication among staff or different departments and hospitals often leads to serious adverse events [14]. Blame culture discourages people from reporting adverse events and learning from experience.
Provision of safe anesthesia is difficult without appropriate resources like water, electricity, water, oxygen, properly functioning monitors, drugs and equipments [15]. Likewise unrecognized malfunctioning equipment can result in disasters. Safe and effective monitors are necessary for conduct of safe anaesthesia for patients. 'Finger on pulse' is no longer a substitute or acceptable standard. Failure to adhere to standard guidelines and checklists is also a deterring factor towards safety. Anaesthesia providers resuscitation skills are limited if necessary fluids, blood and blood products are not available [15].
Safety is thus interplay of many factors, individual and organizational with human and cultural values playing an important role [16]. Every hospital and organization must have a institutional safety plan with skill based anaesthesia performance and information process. These form a robust system to achieve desired successful outcomes.
The patient safety plan must provide a systematic, coordinated and continuous approach to the reduction of medical errors. These adverse events can be significantly reduced by implementing safety control such as regular monitoring by workers within a complex healthcare delivery system. Effective communication amongst all the staff members and adequate rest to prevent fatigue and overload of anaesthesiologist plays a pivotal role. Employing non blame culture for incident reporting and healthy analysis for prevention of these mishaps in the future is a must.
Structured patient education wherein information on anaesthesia expectation should be addressed by concerned anaesthesiologist [16]. Comprehensive patient education provision can be quite a consuming affair. Nevertheless this is important for gaining patient's trust and satisfaction. Patients should be educated about five point questionnaire addressing the safety of surgery, anesthesia and patient.
Amongst the medical practitioners, anaesthesiologists tend to be the most risk oriented and interested in addressing patient safety issues [17]. The specialty of anaesthesia has highly organized training, patient risk assessment scales, high patient monitoring standards and patient safety foundation [18,19].
The outstanding anaesthesiologist's performance comes from the hardwork of pioneer in anaesthesia from all over the world. Contribution of various organizations such as WFSA (World Federation of Anaesthesiologist)

[1]Department of Anesthesia, Dr Panjabrao Deshmukh Memorial Medical College., Maharashtra, India.

Address of Correspondence
Dr Marghade Pallavi
Plot no 5, Eknath Vihar, Rajapeth, Amravati.
Tel: +919158233332.
Email: pallavilande@gmail.com



through its educational initiatives is noteworthy [20]. WFSA anaesthesia tutorial of the week provides peer reviewed tutorial on various topics [21]. The anaesthesiologist should constantly endeavour to keep themselves abreast of latest techniques through continuing medical education (CME). The sources for CME can be online, webinars, case based learning at departmental level, through social media (The Anesthetist Facebook group, ACE facebook group). Uptodate certification for BLS, ACLS and PALS should be mandatory for all staff [22]. With advent of smartphones App based learning and maintaining a log book for easy recall of cases should be utilized wherever possible.

Finally system based approach would be the most important approach to establish a firm system with multiple barriers for errors to appear. The anaesthesia departmental policies should be regularly updated in compliance with the international standards set by Joint Commission International (JCI) and NABHI organizations. These include anaesthesia safety checklist laid down by AAGBI for machine, monitors, ventilators, airway equipment, perfusion pumps and emergency cart [23]. Changes in high risk area such as, separation of high electrolyte concentrate, from the normal shelves to avoid catastrophic outcomes, standard labeling of drugs and avoiding abbreviations wherever possible. Implementing safety guidelines for sedation in remote areas and following discharge criteria in the recovery room adds to safe practice.

WHO launched in 2007 its safe surgery, save lives campaign. The theme was defined as clean surgery, safe anesthesia and safe surgeons. Meticulous time in and time out needs to be followed during the preoperative, intraoperative and postoperative period to avoid lapses in safety [24]. The goal is that the team implements simple and efficient priority check in a way that opens up lines of communication between all staff members present and enhances teamwork, to realise improved safety and clinical outcomes. Last but not the least regular audits of the practices and completing the audit cycle by reauditing is absolutely necessary [25]. Thus a comprehensive multidisciplinary patient safety plan or program must be established and implemented in all healthcare facilities in order to assure the patient safety at all times.

References

1. Lanier WL. A three-decade perspective on anesthesia safety. Am Surg. 2006 Nov;72(11):985-9.

2. Aitkenhead AR. Injuries associated with anaesthesia. A global perspective. Br J Anaesth 2005; 95: 95–109.

3. Merriam-Webster Dictionary. Available from URL: http://www.merriam-webster.com/medlineplus/safety.

4. Facts about Patient Safety, Joint Commission international, Patient safety guidelines. Available from

www.jointcommission.org/facts_about_patient_safety/.

5. Eichhorn JH, Cooper JB, Cullen DJ, Maier WR, Phillip JH, Seeman RG. Standards for patient monitoring during anesthesia at Harvard Medical School. JAMA 1986; 256: 1017-20.

6. Gaba DM. Anaesthesiology as a model for patient safety in healthcare. BMJ 2000; 320: 785-8.

7. Lanier WL. A three-decade perspective on anesthesia safety. Am Surg 2006;72:985-9.

8. Canas M, Moreno R, Rhodes A, Grounds RM. Patient safety in anesthesia. Minerva Anestesiol 2010; 76: 753-7.

9. Dubowitz G, Detlefs S, McQueen KA. Global anesthesia work force crisis: a preliminary survey revealing shortages contributing to undesirable outcomes and unsafe practices. World J Surg 2010;34: 438-44.

10. Glenshaw M, Madzimbamuto FD. Anaesthesia associated mortality in a district hospital in Zimbabwe: 1994-2001. Cent Afr J Med 2005; 51: 39-44.

11. Hansen D, Gausi SC, Merikebu M. Anaesthesia in Malawi: complications and deaths. Trop Doct 2000; 30: 146-9.

12. Ouro-Bang'naMaman AF, Tomta K, Ahouangbevi S, Chobli M. Deaths associated with anaesthesia in Togo, West Africa. Trop Doct 2005; 35: 220-2.

13. A none configurationally parameter Baker 2001, MIT, 24 915

14. National patient safety foundation, importance of leadership www.ama-assn.otg/med-sci/npsf/leader.htm.

15. Angela Enright, OC MB: Safety aspects in anesthesia in underresourced locations, review article: Can J Anesth/J Can Anesth (2013) 60:152–158.

16. D Baroudi, W Nofal. Patient Safety in Anesthesia. The Internet Journal of Health. 2008;8(2).

17. Anesthesiology as a model for patient safety in health care David M GABA BMJ 2000; 320:785-788.

18. Messahel F. Quality Assurance in Anesthesia - Saudi Anesthetic Association newsletter, volume 12, no 2 - May 2001.

19. Website of anesthesia safety foundation www. Apsf.org.

20. The Future of Safety in Anaesthesia ,Alan F. Mer.ry University of Auckland, New Zealand -WCF-2008-CAPE TOWN.

21. World Federation of Societies of Anaesthesiologists. Anesthesia Tutorial of the Week. Available from URL: http://totw.anaesthesiologists.org/.

22. The Status of Anesthesia Services and Residency Training Programmes in Saudi Arabia: Facts and Personal Prospective Mohamed A. Seraj, the Internet Journal of Anesthesiology TMISSN: 1092-406X.

23. Surgical Safety Checklist (First Edition), World health organization / 2008 -June edition.

24. Pre-Anesthesia Checklists to Improve Patient Safety Andrew D. Auerbach, M.D., M.P.H. University of California, San Francisco School of Medicine.

25. The 'HOW TO' guide for reducing harm in Perioperative Care: website www.patientsafetyfirst.nhs.uk, version 2- 2009 09

30. Robinson S. Pulmonary artery catheters in Eisenmenger'syndrome: Many risks, few benefits (letter). Anesthesiology 1983;58: 588–589.

Conflict of Interest: Nil
Source of Support: None

How to Cite this Article

Lande-Marghade P. Safety in Anaesthesia. Journal of Anaesthesia and Critical Care Case Reports July-Sep 2015; 1(1):1-3.