

Perioperative medication errors-are these avoidable?

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Perioperative drug errors are under reported in our country but these can be a tool for assessment of quality of care to patients undergoing surgery. A medication error is defined as an error in drug administration irrespective of presence or absence of adverse consequences.¹ Every patient is entitled to the five rights of medication namely the right patient, the right drug, the right dose, the right timing of drug and the right route. In perioperative settings, the time for dispensing to administration of drugs is merely few seconds or sometimes few minutes. The anaesthetist often has to multitask like monitoring of patient, paper work, tracking the progress of surgery and administering multiple medications simultaneously. The whole process of preparation, mixing and administration of drugs while continuous care under stressful situations often creates numerous opportunities for reducing attentiveness to drugs being withdrawn, eventually making OT's a potential area for high risk of adverse events (47.7-50.3%).² Highly stressful situations, handling of multiple issues, fatigue and inexperience contribute to risk. The use of infusion pumps, target controlled infusion pumps have often caused errors because of miscalculation, malfunction or operator insufficiency.

The reported incidence of medication error in anaesthetic practice is between 0.34% to 0.73%. Majority of errors was noted at induction, maintenance and a very small number was reported at recovery. The chances of errors was higher in ASA grade III than ASA grade I and II (0.81% vs. 0.28% reporting incidence). Around 61.5% errors were due to substitution and incorrect dose calculations. In a study evaluating the ability of anaesthesiologists to correctly calculate the infusion dose for children, only 15% could provide correct calculations. The extent of drug errors varied from drug concentrations 50 times too low up to 56 times too high. Errors arising out of wrong dose preparations were found to be significantly high.

Error Prevention in OT

The high incidence of errors during drug administration is due to human factors involved. The need for new systems and technology to assist and recognize anaesthetic drug delivery has been recognized. The Anesthesia Patient Safety Foundation (APSF)³ brought forth recommendations to include safety, which suggest the use of customized drug trays, utilizing standard dilutions for high alert drugs, use of barcode for medication administrations (BCMA), utilization of prefilled syringes and premixed preparations of

medicines and provision of electronic documentation methods for anaesthesia record. The bar-code devices scan the medication ampoules and vials and then printed color-coded, self-adhesive labels are applied that contain critical drug information. These devices also provide feedback about the name of drug and its concentration. The chances of errors resulting from mislabeling a syringe or misidentification of an ampoule or vial may be higher in institutions that do not utilize this technology. They reported when the user's complied with the system's principles, the incidence of drug errors reduced by 21%. They also recommend establishment of a receptive environment for reporting errors (including near misses) and discussion of lessons learned. The American society of Anesthesiologists (ASA) and International Standards Organization (ISO) supports labeling of drugs, meeting specific standards with reference to color coding, font, label content of vials and ampoules. ASA has introduced bar codes and tall man letters to reduce errors between look alike and sound alike medications.

Main approaches to managing adverse events can be divided into two things. Firstly, addressing the human and secondly minimizing system factors. Human factors involve identifying negligence or incompetence of operator. If this is present rectifying measures should be instituted and involves focus on improving knowledge and individual training. System factors focuses on circumstances in which error occurred and is regarded as system failure, or it occurred as a result of interaction between human elements, technology and social skills. Such scenarios advocate prevention such as considerations about process restructuring and identification of problems which are hidden in the system.⁴

The need to make a truthful disclosure of the error to the patient's family remains an ethical imperative. Surveys⁵ conducted show that only 17-30% of physicians inform their patients a medical error has occurred. The right time to communicate with the patient's family is when the patient's safety and care has been ensured and as soon as possible after the insult. This should be done in a quiet environment that allows privacy for communication. One should use simple words which can be understood by lay person. It is important to be sympathetic and allow sufficient time for questions from family and record these details in medical record. Lastly, medical errors or adverse drug reactions must be reported according to the Pharmacovigilance Programme of India (PvPI) guidelines. Healthcare

professionals must report to nearest Adverse drug Monitoring Centers (AMCs) under PvPI and the information is then collected by the Indian Pharmacopoeia Commission (IPC) and National Coordination Centre (NCC).

So to infer – “to err may be human, but in healthcare, to err repeatedly is foolish and perhaps criminals”.

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