Patient Safety in Anesthesia

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Abstract

In modern medical practice and particularly within the hospital environment, the top priority is to assure patient safety with optimum outcome. The demand of the public for the best medical outcome is increased, orchestrated by the daily news of medical misshape from a scandal hungry media to an anxious public. According to the Institute of Medicine (IOM) , anesthesia practice is among the most successful specialties in assuring patient safety and reducing mortality rate from one death per 5000 anesthesia administered to one death per 200,000 -300,000 anesthesia 1 . Anesthesiologists, among practitioners, tend to be the most risk-oriented and interested physicians in addressing patient safety issues 2 because anesthesia specialty has a highly organized training , patient risk assessment scale ,high patient monitoring standards 3 and a patient safety foundation 4 . Nowadays, in spite of the tremendous increase in patient and procedures complexity, anesthesia is safely administered to severely ill patients, morbidly obese, extremely aged and few hours old. This review article identifies the major factors that might jeopardize patient safety and emphasizes on the anesthesiologist role in this aspect during anesthesia practice. We believe that having an institutional patient safety program, along with skill-based anesthesia performance and a structured patient education and information process are the pillars to achieve the desired outcomes.

PILLARS OF PATIENT SAFETY

Although our main aim in this article is to describe the role of anesthetist in patient safety, we believe that it is essential ahead of this to stress on some important facts in this regards.

A-PATIENT SAFETY PLAN

Patient safety as per definition is actions undertaken by individuals and organizations to protect health care recipients from being harmed by the effects of health care services [5] . Patient safety is not limited solely to a certain professional group of health care provider, but it is a joint action organized with a common approach, where human behaviors and cultural values play a major role .Safety does not reside in a person, device or department, but emerges from the interactions of the components of a system [6] . Therefore a comprehensive multidisciplinary patient safety plan or program must be established and implemented in all health care facilities in order to assure the safety of the patient all the time. Adverse events can be related to surgery and anesthesia (e.g. wrong patient, wrong body part, foreign objects left during the procedure), medical devices (e.g. contaminated or unsafe injection), medication (e.g. wrong drug, wrong dose, wrong patient, wrong route or unjustified prescription), unsafe blood or blood product transfusion, patient care (e.g. health care-associated infections, post operative deep vein thrombosis), labour and delivery (e.g. birth and obstetric trauma) and environmental issues (e.g. exposure to radiation, burns, electric shock, falls) .The patient safety plan must provide a systematic, coordinated and continuous approach to the reduction of medical errors. This plan integrates patient safety priorities into the design and redesign of all relevant organization processes and functions, thereby reducing the risk of harm in systems, processes or the environment of care. The leadership support and enforcement of a patient safety plan and plan execution is the basic principle in achieving the desired outcome. The Leadership must create a safety culture within the health care institute in the form of stopping assigning faults to individuals and must foster the attitude that mistakes are a chance to learn and improve care. So that patient safety becomes part of the performance assessment. Hospital leaders should clearly communicate patient-safety requirements and enforce those standards especially when they need budget approval. [6, 7,8,9,26]

For the purpose of this article it is worthy mentioning some key terms related to adverse events as defined by the institute of medicine IOM [10,11]

Figure 1

Error	The failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim; not all errors result in injury.
Adverse event	An injury resulting from a medical intervention (ie, not due to the underlying medical condition of the patient).
Preventable adverse event	An adverse event that was attributable to a medical error.
Negligent adverse events	Represent a subset of preventable adverse events that satisfy legal criteria used in determining negligence.
Adverse Drug Reaction (ADR)	Is a term to describe the unwanted, negative consequences sometimes associated with the use of different medications?
Medication error	A medication error is any type of medicine related mistake made by a health care professional that may severely impact a patient, causing serious injury.
Near miss	An error which does not reach the patient or cause harm. An event or situation that could have resulted in an accident, injury or illness, but did not, either by chance or through timely intervention

Medical mishaps or unsatisfied customer outcomes are the results of adverse events within the hospital. We are confident that all adverse events are identified due to five major causes:-

Errors caused by flaws in equipment design; an example of automation error is an infusion pump free-flow that causes an overdose [12] However, such incidents can be significantly reduced when safety controls, such as regular monitoring by workers, are put in place.

Failure in communication among staff or among different departments and hospitals; Complex organizations need information systems that provide smooth communication within and among medical teams. Lack of communication may arise from insufficient discussion of cases at shift change, or a failure of staff in different departments to coordinate clinical care [9]

Staff shortages resulting in stress and fatigue and leading to lapses in performance.

Complexity of health care organizations making them error-prone environments. Studies show that intensive care, a very complex environment, has an even greater concentration of adverse events. Heavy workloads, inadequate staffing, and limited access to vital equipment are also work-environment factors that can lead to mishaps [13]

Punitive organizational cultures that discourage people from reporting adverse events and learning from experience. In our institute, we establish a none punitive incidence report system , any incident if not reported will be subjected to a heavy disciplinary act Preventing adverse events requires understanding how they happen and making improvements in the above mentioned areas.

B- PATIENT EDUCATION

Patient and family education is essential to maximize health and minimize ill effects of the disease. Hospital staff shall be committed in assisting the patient and/or his/her guardian in gaining the knowledge and skills needed to meet the patient's ongoing health care needs [14]. Patient and family education should occur in each site providing care and should be provided including anesthesia practice to facilitate the understanding of their health care status and health care options and to participate in decision making. Patient information on anesthesia expectation increases patient ability to cope with post operative pain, sore throat or any post operative reaction. Usually the patient is poorly informed as regards anesthesia and post operative care, unless he/ she went through a previous surgery and not always a pleasant experience can be remembered. Providing a comprehensive patient education process as regards anesthesia is considered by some anesthesiologists to be time-consuming. Furthermore, the anesthesiologist may delegate this task to a junior staff member with limited experience, or the anesthesiologist performing the education to the patient and gain patient trust is not the same one performing the anesthesia on the operation day. We believe that communicating such information, including minor post operative complains and eventual name of the performing colleague, makes a big difference to an anxious patient visiting the surgical theater for the first time in his / her life and preminded with all scandalous history and mystery of the operating room. In our institute and after establishing an anesthesia clinic where more time and information were presented to the patient, the patient satisfaction survey from all anesthetized patient encouraged us to consider the patient education and information as a mandatory part of our duty.

C- ANESTHETIST PERFORMANCE.

By reviewing the literature and regardless of the dispute about anesthesia related mortality rate [15] there is no doubt that in the last 20 years a remarkable improvement in anesthesia safety is documented and anesthesia has been established as a model of safety , other specialties are encouraged to engage in similar risk reduction strategies [16] The Committee on quality of health care in America asserted " Anesthesia is an area in which very impressive improvement in safety has been made ". This outstanding anesthesiological performance model and patient safety orientation are not coming from scratch, these are the result of hard work and sacrifice of pioneer anesthesiologists all over the world, and they worked hardly in establishing

associations and societies which help the new generations to achieve this goal, not to forget the effort of the World federation of Anesthesia WFSA effort through the educational Initiative [17] . Considering that the Kingdom of Saudi Arabia is the most advanced country in the Arab world in providing health care, the advance in patient safety during anesthesia is through the achievement of prominent native anesthesiologists critically addressed the patient safety issue in anesthesia in form of investing on human performance and establishing in the late eighties and the early nineties the state of the art residency training programmes in anesthesia and intensive care in Saudi Arabia along with the Anesthetic Association defending and protecting the specialty and the specialists and exert power on regulatory bodies to strictly follow the anesthesiological performance all over the kingdom in mandating additional certification to all medical staff working in anesthesia and not limited to physician , such as the certification for basic (BCLS) and advanced (ACLS)cardiac life support for adult and pediatric patient (PALS) [18] . Therefore with the era of acquiring quality accreditation from regional, national and international bodies, the anesthesia departments generally had it easy to comply with all required standards and only few adjustments in some departments were required.

D-SYSTEM APPROACH

Nowadays we have moved away from person- centered approach that seeks to identify individual failures towards the system-approach necessitated to establish a firm system allow multiple barriers for errors to appear, as the contribution of human factor in medical errors is only 15 % the remaining 85 % is related to defects in the system .As an error-free human being is impossible to be engineered, it is possible to change the conditions under which humans work. Therefore anesthesiologists are urged to have a firm comprehensive departmental system , under continuous assessment and evaluation to avoid what the late Barry Turner stated in his book on Man made Disasters " [19] the idea of an incubation period for errors within the system , suggesting that errors could lie dormant until circumstances allowed their negative effects to take place" .Therefore the requirements are that each anesthesia department adjusts its system to make patient safety a priority .In our anesthesia department and complying with the Central Board of hospital accreditation(CBAHI) requirements based on the Joint Commission International(JCI) accreditation standards , we updated all our anesthesia department policies and procedures to include in the purpose of each policy , the statement (this policy purpose serve to assure patient safety) some minor changes within our high risk area, as separating high electrolytes concentrate from the normal shelves avoid a catastrophic outcomes if mistaken. proper labeling of anesthesia medication [20] , critical review to medication safety [21] ,standardization of abbreviation ,to use and not to use list , care for verbal or telephone order , read back process , documented inter-departmental endorsement of patient, scoring system (Aderlet score) to discharge patient from recovery room , safety guidelines for conscious sedation in remote areas , Anesthesiologists behavior to complete each other within the department and not compete with each other , all those very minor changes in system result in assuring patient safety , even better implementing a checklist system similar to time out for surgery [22] and based on Anesthesia Apparatus checkout recommendation [23] the checklist shall not only examine the integrity of the anesthesia machines and ventilatory monitors but as well cardiovascular monitors, airway equipment, perfusion pumps, emergency card, this checklist is likely to grow as the complexity of care is growing. With the expending duty of the anesthesiologist out side the operating room to provide services in remote area, the same standards of care and patient monitoring must be implemented.

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