The role of an Anesthesia Quality Improvement Program is to provide a routine, planned and systematic process to monitor and evaluate the quality and appropriateness of anesthesia care. Good clinical practice is a prerequisite in order to provide quality of care. Measurement of quality indicators is a continuous review of practice against defined standards, established by peers and comparison with norms of practice. Anaesthetic mortality and serious morbidity is becoming exceedingly rare but insight into the contribution of anaesthesia to perioperative mortality is important to enable further improvements in the safety and quality of perioperative care. The reported incidence of mortality in American Society of Anaesthesia (ASA) status-1 (normal healthy patient) and 2 (patient with mild systemic disease) patients range between 0.2-0.04 per 10,000. Analysis of mortality in relatively healthy patients removes the influence of patients disease and helps to focus on the controllable system-related problems. This audit was conducted to find out the historical benchmark of mortality in ASA-1 and 2 patients in an university hospital of South Asian country, any emerging trends over the years and to compare this benchmark with other international data.

All surgical patients who died within 48 hours of receiving anaesthesia during the audited years were evaluated for demographic information, preoperative condition, ASA status, level of anaesthetist, type of surgery, duration of anaesthesia and surgery, time of mortality and sequence of events in a predesigned form by the primary consultant anaesthetist. All cases were reviewed by two independent consultants not involved in the management of the patient’s care. They gave their written opinion regarding the possible cause of death, role of anaesthesia in mortality and whether the mortality was avoidable. The role of anaesthesia was further classified as solely, partially or not contributing to the mortality.

The perioperative period was defined as the time from the induction of anaesthesia to PACU discharge, ICU or ward. Anaesthetic mortality in ASA-1 and 2 patients was defined as deaths occurred within 48 hours of anaesthesia between January 1, 1992 and December 31, 2006. Cardiothoracic surgeries were excluded. Anaesthesia related deaths were defined as where anaesthesia was solely responsible or partially responsible for mortality. The anaesthesia factors that were noted included the type of anaesthesia, duration of anaesthesia and surgery and the presence of anaesthesia consultant at the time of event. The time and place of mortality, at induction, at maintenance and at emergence were documented. Factors relating anaesthesia, surgery, patient or combination of factors and human factors responsible for mortality were documented. Duration of anaesthesia was 9 hours.
The total surgical workload handled by the department of anaesthesia between 1992 and 2006 was 140,384 cases. A total of 56,153 ASA-1 (n=29220) and ASA-2 (n=26923) patients were anaesthetized during that period. Two ASA-2 patients died within 48 hours of receiving an anaesthetic during this period. No mortality occurred in ASA-1 patients. Anaesthetic mortality in ASA-1 and 2 patients, was calculated as 0.14 (2/140384) per 10,000 and anaesthesia related mortality was 0.07 (1/140384) per 10,000.

The first case was of a 2 years old male in whom frontal craniotomy for excision of tumour was performed as an elective case under general anaesthesia. Duration of anaesthesia was 9 hours. Patient had cardiac arrest 6-hours postoperatively in ICU due to raised ICP. On peer review evaluation, the two reviewing consultants agreed that the surgical factor, intracranial bleeding was responsible for the mortality.

The second ASA-2 patient was a 45 years old female who presented with only stridor and diagnosis of vocal cord paralysis, in whom emergency tracheal intubation and direct laryngoscopy under general anaesthesia was planned. She had cardiac arrest at induction and could not be resuscitated. Tracheal intubation was difficult and patient developed pneumothorax and surgical emphysema probably due to the use of intubation stylet. Anaesthesia was solely responsible for the mortality. Human error, error of judgment, poor pre-operative evaluation and lack of supervision were identified as factors that played a part in the mortality. Overall anaesthetic mortality in ASA-1 and 2 patients was calculated as 0.35 (2/56153) per 10,000 and 0.74 (2/26923) per 10,000 of ASA-2 patient's volume. Anaesthesia related mortality was calculated as 0.17 (1/56153) per 10,000 and 0.37 (1/26923) per 10,000 of ASA-2 patient's volume.

There has been a lack of agreement on how to appraise quality in anaesthesia. Various countries and research groups differ widely in their criteria for reporting adverse outcomes/events. Lack of uniformity in operational and outcome definitions in the reported anaesthesia literature is a major issue.

Monitoring of anaesthetic mortality as a continuous outcome quality indicator in relatively healthy patients (ASA 1-2) provide a quantitative basis for anaesthetist, organizations, and planners aiming to achieve improvement in care and the processes by which patient care is provided.

The process of benchmarking is used to measure efficacy and allow organizations or departments to develop plans for improvements or adopt best practice within their own subspecialty. In spite of relative safety of modern anaesthesia mortality related to anaesthesia can still occur. The causes related to anaesthetic morbidity have been identified, but study populations may differ historically and regionally with respect to perioperative risks, which makes it difficult to detect trends.

Monitoring the anaesthetic mortality in relatively healthy individuals serve to document the quality of care, benchmarking, make judgments and set priorities. Reviewing and analysis of anaesthetic mortality in healthy individuals provide us the opportunity for identifying the confounding factors other than patient's health. Therefore, if fair comparisons in anaesthetic mortality as outcome between well equipped hospital and hospitals with limited facilities are to be made components that relate to the medical care system should be isolated.

With the changing practice in anaesthesia, same day admissions, complexity of anaesthetic care, the increasingly complex equipment has increased demands and expectations from the anaesthetist. However, anaesthetists are dealing with an increasing number of patients who may undergo increasingly extensive and prolonged surgical interventions. Therefore, an increase in morbidity and death rates may be expected. There are therefore strong indications to continue the monitoring of anaesthetic mortality according to the ASA status. The continuous monitoring and analysis of anaesthetic mortality as an indicator in ASA-1 and 2 patients helps in identifying the system related factors and problems with training and supervision.

Trends at the study centre show that about forty percent of total anaesthetics administered are ASA-1 and 2 patients. In this study the bench mark for anaesthetic mortality in ASA-1 patients comes out as zero. However, two ASA-2 patients died during this period. After peer review of the anaesthesia related mortality, the level of anaesthesia supervision in cases with expected airway problem was raised and availability of surgeon ready for emergency tracheostomy was made mandatory. Data shows that the overall mortality rate in this study is comparable to any reported incidence but if denominator is taken from a particular group of patients (ASA-1 and 2) the figure is almost double of the reported incidence. We suggest continuing anaesthetic mortality monitoring as a continuous quality indicator at departmental level and at large. The said figures can be used as benchmark for reporting of anaesthesia related mortality according to the volume of respective ASA status, which will help in evaluating the perioperative care and systems geared with the type of patients without other confounding variable of patient disease.

REFERENCES


.....☆.....