

Sedation- analgesia in non operative locations: Practice trends of anaesthetists

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Abstract

Sedation/analgesia is a mode of anaesthesia which facilitates an uncomfortable or painful procedure, such as gastrointestinal endoscopy, in a rousable and cooperative patient. The objective of the study was to assess the practice trends for administering sedation analgesia in non operative locations in Aga Khan Hospital, Karachi by anaesthetists. It was a descriptive study which retrospective reviewed anaesthesia records. A total of 41 ASA I-IV cases were reviewed. Non invasive cardiorespiratory monitoring and clinical sedation monitoring were applied. Intravenous Propofol infusion and midazolam boluses were used, singly or in combination with fentanyl boluses. All our patients recovered uneventfully within 5 minutes of the end of procedure.

The practice trends for drug regimens are similar to those reported in recent literature. However we need to provide BIS monitoring, target controlled and patient maintained sedation to enhance patient and operator comfort.

Introduction

Sedation /analgesia or conscious sedation is a mode of anaesthesia in which a carefully titrated level of sedation and/or analgesia is provided to facilitate a procedure which would otherwise be uncomfortable or painful for the awake patient. It is a drug induced control of level of consciousness ranging from mild to deep sedation developed by the American Society of Anesthesiologists; approved by the ASA House of delegates October 13th, 1999.¹ The patient remains in control of his airway; cardiovascular function is maintained and there is rapid reversal of drug effects, bypassing the need for phase 1

recovery area. This service can be provided in a variety of non operative locations such as endoscopy suites and radiology, enabling optimal utilization of operating rooms. It is economical both for the patient and the health care facility.

A number of invasive diagnostic and therapeutic interventions in health care today being offered in non-operative locations require the services of an anaesthetist for alleviation of anxiety, pain and discomfort, and monitoring of vital signs.¹ General anaesthesia is resource intensive and patient turnover is limited because of the need for operating room facilities and a post anaesthesia care unit. Sedation analgesia titrated to perceived discomfort or pain without loss of consciousness enables rapid recovery and discharge fitness. Major non operative locations where this mode of anaesthesia is suitable are:

Radiology department, angiography suites, coronary care units, psychiatry procedure rooms, gastroenterology procedure rooms, paediatric procedure rooms and day care units.

During conscious sedation sedative and analgesic drugs are used singly or in combination²⁻⁴ to provide amnesia, analgesia, anxiolysis and immobility in arouseable and cooperative patients. Short acting, easily titrateable drugs allow prompt adjustment of therapeutic levels in proportion to the magnitude of the noxious stimulus. The most commonly used drugs are propofol, midazolam and short acting opioids.

Monitoring of sedation is clinical, according to responsiveness to verbal commands with or without tactile stimuli.^{1,5} The titration of drug dose to intensity of noxious stimulus may easily lead to excessive sedation which may cause airway obstruction, hypoventilation, haemodynamic

instability and delayed recovery, especially with drugs like propofol. Conversely caution may cause undersedation and operator and patient discomfort. Clinical monitoring of sedation during a procedure is difficult and may not be possible in children and uncooperative patients. These problems can be overcome by a number of methods reported in recent literature. Electroencephalographic monitoring of sedation by bispectral index (BIS) enables maintenance of sedation in the optimum range and prevents over or undersedation. This monitoring has maximum applicability in non operative locations where mild, moderate or deep sedation is being provided, sometimes by non anaesthesiologists.^{6,7}

The setting of target serum levels in the appropriate therapeutic range for controlled sedation in infusion systems will also prevent giving too much or too little of sedative drugs.^{2,8} A further control of sedation is provided by target controlled, patient maintained or patient controlled sedation systems in which patient administers a drug bolus according to perceived discomfort or pain.^{5,8,9}

Patient controlled sedation systems without target controlled infusions are also being used but over sedation has been reported.⁹

At AKUH this service was started in June 2001 with the objective of fulfilling hospital needs and Joint Commission International Accreditation (JCIA) requirements. The main end users of this service are gastroenterologists performing Endoscopic Retrograde Cholangio Pancreatography in the Radiology suite. Initially there was a reluctance of anaesthetists to exceed fixed amounts of a single drug during procedures due to fear of airway compromise, remote location with space constraints, and lack of crisis management support similar to the operating rooms, with resulting frequent complaints of dissatisfaction by operators. However gradually the comfort level of patients, operators and anaesthesia care givers have increased, with availability of infusions of short acting titrateable drugs and use of drug combinations which enable prompt adjustment of therapeutic effect and fast recovery.

Patients, Methods and Results

It was a descriptive study which included retrospective review of anaesthesia records of ERCPs to see the sedation and analgesia technique between January 2005 and December 2005. We included in our study all ERCPs done under sedation analgesia by anaesthetists in the radiology suite. ERCPs done in the main operating room were excluded. No ethical consent was required for our study. The study time span was one year.

A total of 41 cases were reviewed. Two cases were done in main OR and were excluded from the audit. There were 26 (63%) elective procedures and 15 (37%) were semi emergencies. The age of patients ranged from 16-85 years, mean age 54 ± 17.1 years. The number of patients of ASA I were 10 (25%), ASA II, 19 (46%), ASA III, 8 (20%) and ASA IV 4 (10%). Total 21 cases were done by instructors under cover of a coordinating consultant and 20 by consultants. Monitoring of non invasive blood pressure, continuous ECG, arterial oxygen saturation by pulse oximetry and clinical assessment of sedation level was done in all patients. The drug regimens used were intravenous propofol singly in 19 (47%) or in combination with fentanyl in 17 (42%), midazolam alone in 1 (2%) or in combination with fentanyl in 3 (7%), and etomidate alone in 1 (2%). Propofol and fentanyl combination was used by 35 (86%) instructors and 6 (14%) consultants. The drug delivery mode was dose set infusions of propofol in the range of 25-100 $\mu\text{g}/\text{kg}/\text{min}$, all the rest were given as boluses i.e. midazolam 1-2 mg, fentanyl 25 -100 μg m and etomidate 0.1 mg/kg. All patients recovered uneventfully within 5 minutes of end of procedure. There were no complications of anaesthesia in any case.

Conclusion

We conclude that our practice trends are similar to those reported in recent literature as far as choice and dosage of drugs is concerned but we have to promote BIS monitoring and target controlled infusion systems with patient maintained sedation for optimum operator and patient comfort and safety.

References

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