Procedural sedation in the emergency department: good medicine or flirting with danger?

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The alleviation of pain and suffering through sedation and anaesthesia represents one of the great advances in medicine. Sedation and anaesthesia techniques have evolved and we are seeing increasingly frequent use of these techniques outside the operating theatre. In this issue, two audits are published describing the experiences and potential benefits of procedural sedation in the Emergency Department at Waikato Hospital.\(^1,2\)

In this context it is useful to define what we mean by sedation and how this differs from anaesthesia. Conscious sedation is a drug-induced depression in consciousness but patients still respond to verbal commands or light tactile stimulation. The margin of safety of this technique is very high because patients maintain their protective airway reflexes.

During deep sedation, patients respond only to painful stimuli and progression to general anaesthesia is common, certainly once any painful stimulus is removed. Determining whether patients are deeply sedated or anaesthetised is difficult to define and in reality sedation and general anaesthesia are part of a continuum. The important thing to emphasise is that deep sedation is very likely to have similar risks to general anaesthesia and requires an equivalent level of care.\(^3\)

The authors of these audits have defined procedural sedation as “the administration of intravenous, intramuscular, oral, intranasal or rectal hypnotic/sedative agents alone or in combination with analgesics to facilitate performance of potentially noxious procedures whilst in the emergency department”.\(^1\) In 99% of adult cases presented, this was achieved by the administration of propofol and in 73% of cases with the addition of fentanyl.\(^1\)

The mean amount of propofol and fentanyl given to patients are similar to doses required to induce general anaesthesia. Among their adult cohort, 22% required some form of airway intervention. As we don’t know their endpoint for sedation,\(^1,2\) it is therefore likely that some patients were in fact anaesthetised rather than sedated and if this is the case, was the same level of care applied compared to general anaesthesia in the operating theatre?

One area of rigorous debate is the issue of fasting prior to procedural sedation. Reports of aspiration during procedural sedation are rare in the literature.\(^4,5\) This may well be because of relatively small studies published and reliance of self-reporting of adverse events. However, the truth is that aspiration under general anaesthesia is also infrequent and when it does happen, it seldom results in mortality.\(^6,7\)

The question is then, have we anaesthetists got it all wrong? Should we not bother fasting patients prior to anaesthesia? Certainly, most of the patients having procedural sedation during these audits were not fasted\(^1,2\) and forearm fractures under procedural sedation amongst a paediatric population at Waikato Hospital was associated with a
shorter delay until the reduction of the fracture and a shorter hospital stay.\(^2\) Could and should anaesthetists do away with fasting and also save time and potentially money?

Anaesthesia is very safe and the reason it is very safe are the high standards put into practice. The American Society of Anesthesiologist’s (ASA) have recommended minimum fasting periods prior to elective anaesthesia.\(^8\) Although modern recommendations with regard to clear fluids have been somewhat relaxed with patients now encouraged to drink clear fluids up to 2 hours before surgery,\(^9\) solid foods are still prohibited for 6 hours prior to anaesthesia.

Despite commentary in the literature stating otherwise,\(^4,5\) there is not enough evidence to suggest that the incidence of aspiration during procedural sedation is any less than during general anaesthesia. A trial to show a difference would require both rigorous methodology and very large numbers. Thus, we cannot assume that the risk of aspiration during procedural sedation (especially deep sedation) is any different to that during general anaesthesia.

What we do know is that emergent cases are at increased risk for aspiration and also those cases whereby gastric emptying is likely to be delayed.\(^6,7\) For these higher risk cases, it may be prudent to weigh up your options. For example, should the procedure be delayed, does the trachea need to be protected by intubation, what should be the sedation end point (conscious sedation versus deep sedation) and what drugs should be used? Readers should also be reminded that any intravenous anaesthetic agents must only be used by a second medical practitioner trained in their use and must not be administered by the proceduralist.\(^3\)

With adequate training, procedural sedation can be, and is, practiced safely by non-anaesthetists. It is clear that the Emergency Department at Waikato Hospital have instituted some very good systems and amassed a great deal of experience and expertise. However, in the interests of safety, hospitals need to be reminded that standards should be adhered to despite resourcing issues and other pressures (for example from Health Ministry targets).

The Australian and New Zealand College of Anaesthetists, together with other specialist groups including the Australasian College of Emergency Medicine, have published sedation guidelines that emphasis some of these systems that need to be in place.\(^3\)

We need to balance humanitarianism with the resources of the public hospital system but most important is the maxim *primum non nocere* (first do no harm).

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**References:**


