

Sedation for endoscopy

Can non-anaesthetists provide safe sedation using anaesthetic agents?

SEDATION IS A DIFFICULT CONCEPT to define, as it includes a continuum from anxiolysis to anaesthesia. The point at which sedation becomes anaesthesia is generally accepted as occurring when the patient becomes unresponsive to verbal commands.¹⁻³ Sedation is a depression of, rather than a loss of, consciousness, and may be combined with analgesia and amnesia to facilitate otherwise unpleasant and painful procedures. There is a large demand for sedation with endoscopy in Australia, although this is not universal practice.⁴ For instance, most colonoscopies in Germany are performed without sedation.

There has been serious concern as to the safety of sedation for endoscopy following a prospective audit of gastroscopy and sedation in the United Kingdom in 1994. This audit found a 0.05% (1 in 2000) 30-day mortality.⁵ Although arguable, a third of these deaths were attributed to complications of sedation. There have been no comparable large-scale audits reported since, but anecdotal reports of mortality persist. The concern becomes more apparent when the comparison is made to the Australian anaesthesia-related death rate of less than 1 in 63 000.⁶ There are no reliable Australian data on deaths related to sedation.

Consequently, professional documents have been formulated in the UK, the United States, Australia and New Zealand based on first principles and consensus, rather than on substantial evidence. In this issue of the *Journal* (page 159), the audit by Clarke et al on sedation for endoscopy⁷ primarily demonstrates how effective these professional guidelines have been. With the universal use of dedicated trained sedationists, supplemental oxygen, monitoring of pulse oximetry, blood pressure and respiration, patient selection and an accredited facility, there was no mortality reported in 28 472 endoscopies. The only caveat to this mortality rate is that postdischarge follow-up was limited to one telephone call.

Notwithstanding this good news, most of the interest generated in this report will be because it describes general practitioner sedationists using propofol. The GPs in this audit had selection criteria, training and a maintenance-of-standards program that was entirely consistent with the current guidelines.¹ Furthermore, complex or high-risk patients were transferred to hospitals (numbers unknown) or to the care of an anaesthetist (21.4%), which again is in keeping with the guidelines.¹ The departure from the guidelines occurs with the use of propofol — the guidelines do not allow medical practitioners other than anaesthetists to use this agent. This applies to all intravenous anaesthetic agents (eg, methohexitane and ketamine), largely because of the rapidity with which sedation becomes anaesthesia. Sedation is achieved with propofol at about a third of the anaesthetic blood concentration or dose. Problems arise with propofol because of the individual variation of the anaesthetic concentration or dose, which in itself can vary by a factor of three, and the synergistic effects of narcotics and benzodi-

azepines, which may reduce the anaesthetic concentration or dose by as much as 50%. Propofol is further complicated by having its peak effect at about four minutes, making titration difficult. However, propofol is redeemed by the short redistribution half-life of 2–8 minutes and the failure of blood concentrations to achieve significant levels during its long elimination half-life (3–8 hours), owing to its extremely high clearance rate. Propofol is approved in Australia for conscious sedation.

The real issue is what is the intent of the propofol administration. If the intent is loss of consciousness, then it is anaesthesia, and the drug should be administered by an anaesthetist in an institution equipped and licensed for anaesthesia. In New South Wales, institutions have been prosecuted after adverse patient outcomes for administering anaesthesia with such agents while not licensed. It is difficult in this audit, because of the failure to differentiate the propofol doses used by the GPs (78.6% of cases) and the anaesthetists (21.4% of cases), to determine the doses used by the GPs. However, the doses appear consistent with planned sedation. Nevertheless, GPs had a higher incidence of adverse events (not reaching statistical significance) and, significantly, a higher intervention rate for respiratory adverse events than the anaesthetists, even though complex patients and procedures were allocated to anaesthetists.

In summary, the audit by Clarke et al supports the effectiveness of the current guidelines for sedation. The use of propofol in circumstances defined by current guidelines may be sufficiently safe when the agent is administered by such appropriately trained medical practitioners. Propofol and other intravenous anaesthetic agents should not otherwise be used by medical practitioners, except those who are trained in anaesthesia.

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