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## **Elderly patients vulnerable because of excessive doses of sedatives**

Elderly patients are being put at risk through excessive doses of sedatives for gastrointestinal (GI) endoscopy. Following new findings, NCEPOD is issuing advice to the NHS on recommended doses of sedative drugs, and this advice is fully supported by the NPSA.

The NPSA first began looking into this area following a report of a serious incident in dental anaesthesia which has been followed up with the Chief Dental Officer.

People over the age of 70 are more sensitive to many drugs than younger people. It is well established that the dose of Midazolam they require is usually half or less of that required for younger patients. Midazolam is an intravenous (IV) benzodiazepine routinely used for procedures requiring IV sedation.

A 2004 report by the National Confidential Enquiry into Patient Outcome and Death (NCEPOD), *Scoping our Practice*,<sup>1</sup> found that there have been 1,818 deaths after therapeutic GI endoscopic procedures. NCEPOD advisors judged that the sedation given was inappropriate in 14 per cent of cases, usually because an overdose of benzodiazepine had been administered. The use of flumazenil, a benzodiazepine antagonist, usually indicates that the patient has been given a relative overdose of benzodiazepine. Detailed analysis of NCEPOD data shows that patients who were given flumazenil died two days sooner after their endoscopy than patients who did not receive flumazenil.

Analysis of NRLS data has shown that there have been 349 incidents involving Midazolam or Pethedine between 24 November 2003 and 30 September 2005.

Monitoring and safety guidelines for sedating patients have been issued in the past; particularly in light of a 1991 audit<sup>2</sup> of over 14,000 patients that had an upper GI endoscopy. The audit found that over 100 patients died within 30 days of the procedure. Several of these patients died as a result of being given too large a dose of either IV Midazolam or Diazepam.

Previous guidelines have all stressed the importance of not exceeding the dose of IV benzodiazepine recommended by the manufacturer and of reducing the dose sufficiently in elderly, frail or at-risk patients.

Recent audits of endoscopic procedures such as colonoscopy have shown improved monitoring of endoscopy patients<sup>3</sup> However, the NCEPOD study shows that some endoscopists continue to use excessive doses of sedatives in elderly patients.

The British Society of Gastroenterology (BSG) issued guidelines in 2003 on doses of Midazolam and Pethidine in vulnerable, at-risk and elderly patients<sup>4</sup> and the NPSA fully endorses these.

NCEPOD is recommending that all endoscopy units adopt the following dosing policy with immediate effect. This dosing policy should also be considered for other procedures requiring IV sedation.

- 1 In patients over the age of 70, no more than 2mg of Midazolam or 25mg of Pethidine should be drawn up into any syringe prior to the procedure.** In most instances the maximum dose of sedative should be 2mg of Midazolam or 25mg of Pethidine. However, it is recognised that this group of patients exhibit a wide spectrum of baseline physiology and medical conditions and that occasionally it may be appropriate to exceed this dose. This will depend upon the procedure being undertaken, and the degree of sedation achieved once the effect of the initial dosing has been observed.
- 2 In patients under the age of 70, no more than 5mg of Midazolam or 50mg of Pethidine should be drawn up into any syringe prior to the procedure.**
- 3 The practice of routinely drawing up 10mg of Midazolam or 100mg of Pethidine should cease in all patients.**
- 4 The drugs should be given slowly into an indwelling plastic cannula and flushed through with sterile saline.** Further 'top-up' doses of Midazolam or Pethidine should only rarely be required.

The NPSA intends to approach drug manufacturers to explore whether ampoules containing Midazolam 2mg in 2ml and 5mg in 5ml can be made available in the UK in addition to the present standard Midazolam 10mg in 10ml. A similar approach will be taken concerning Pethidine 25mg in 1ml.

## References

1. *Scoping our practice* is available to download from the NCEPOD website at: [www.ncepod.org.uk](http://www.ncepod.org.uk)
2. Quine MA et al. Prospective audit of upper gastrointestinal endoscopy in two regions of England: safety, staffing and sedation methods. *Gut* 1995 **36(3)** 462-7.
3. Bowles CJA et al. A prospective study of colonoscopy practice in the UK today: are we adequately prepared for national colorectal cancer screening tomorrow? *Gut* 2004 **53(2)** 277-83.
4. [http://www.bsg.org.uk/pdf\\_word\\_docs/sedation\\_elderly.pdf](http://www.bsg.org.uk/pdf_word_docs/sedation_elderly.pdf)