Nurse-Administered Propofol Sedation (NAPS) for Gastrointestinal Endoscopic Procedures: NAPS or NAPA?

Ramsay M.A., M Hein T. *Anesthesiology* 2004; 101: A68

Registered nurse-administered propofol sedation (NAPS) for upper and lower gastrointestinal endoscopy, supervised by the gastroenterologist, is being advocated in recent gastroenterology publications and by The American College of Gastroenterology. 1,2 Propofol certainly offers potential advantages to this patient population because of its rapid onset of action and rapid recovery to alertness when compared to combination sedative techniques that include benzodiazepines and opioids. Although propofol is not an analgesic, the dose administered can be increased to deepen the level of anesthesia so that pain can be tolerated. However the therapeutic index of propofol is narrow such that general anesthesia and respiratory depression may be induced easily as the dose is increased. The safety of NAPS is being claimed by the development of a two-center database of over 17,000 procedures without a documented adverse event other than two patients requiring mask ventilation. A sedation technique described is the administration of propofol as a bolus beginning with a 30-50 mg dose given over 5-10 seconds followed by further boluses of 10-20 mg as required for a total dose of more than 200 mg propofol for a procedure.1

To determine to what depth of anesthesia this group of patients was routinely taken , we downloaded the archived data of seven ambulatory patients who had undergone colonoscopy using this propofol technique administered by anesthesiologists and had been routinely monitored with the PSA 4000 (Physiometrix, Inc. N. Billerica, MA) electroencephalogram (EEG), depth of anesthesia device. This was approved by our Institutional Review Board and given exemption from patient consent. The patient state index (PSI) measured by this monitor that is associated with general anesthesia is a score in a range from 25 – 50. Deep sedation is a score in the range of 50-70.

An analysis of these data demonstrated that all seven patients reached levels of EEG activity correlating with general anesthesia during the colonoscopy. Therefore NAPS is the wrong nomenclature for this process, it should be NAPA – nurse-administered propofol anesthesia. It is certainly concerning how many of the patients in the reported 17,000 patient database may have had significant respiratory depression that went unrecognized, as only two patients were reported that required brief mask ventilatory support. It is very likely that many more patients survived unrecognized respiratory depression. Respiratory depression is not easy to detect in the extubated patient, therefore close monitoring of end-tidal carbon dioxide and level of sedation using a scoring system or a depth of anesthesia monitor may provide helpful information.

References: 1. Rex DK et al. Gastroenterol Disord 2003 3 70-80. 2. www.gastro.org

Time at Different Depths of Anesthesia				
	Duration mins			
Patients	ALL	PSI<70	PSI<50	PSI<25
1	43.42	24.50	12.63	0.00
2	40.88	18.00	4.08	0,00
3	45.79	16.21	7.17	0.00
4	24.00	16.13	11.08	3.04
5	25.33	13.88	10.54	3.25
6	54.50	45.25	41.29	0.00
7	41.17	38.92	38.71	37.92