

Propofol Is Superior to Midazolam for Sedation of Dentophobic Patients

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ABSTRACT

Dentophobia (phobia for dental treatment) is a common cause of neglecting dental care and the consequently poor dental condition of many patients. The fear is so intense that some means of sedation is required to carry out dental treatment. Midazolam and propofol are widely used for sedation in various clinical settings. In this study, we compared midazolam and propofol in two similar groups of dentophobic patients, in relation to the maintenance of oxygenation, cardiovascular stability, quality of sedation and amnesia, incidence of side effects, and speed of recovery. Decreased oxygen saturation was rare and

similar in both groups. A higher incidence of heart rate and blood pressure changes, together with nausea and vomiting, was seen in the midazolam group than in the propofol group. The quality of sedation and amnesia was significantly better in the propofol group than in the midazolam group. The recovery interval was significantly shorter among propofol patients than among midazolam patients. In conclusion, the incidence of side effects was lower and the recovery time shorter with propofol than with midazolam for the sedation of dentophobic patients.

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Fear of dental treatment has been estimated to be present in about 40 million American citizens¹ and in 22% of the Norwegian population at age 20.²

Although many invasive procedures do not require general anesthesia, they may be associated in patients' minds with pain, fear, anxiety, and extreme suffering, resulting in frequent refusal of dental treatment and neglected dental care. General anesthesia or sedation for dental treatment in children is well accepted throughout the world, but its use in adult patients is rarely considered to be indicated. Padfield states that there are only two adult patient groups in whom general anesthesia or sedation is indicated: those adults who are mentally challenged and unable to cooperate when local anesthesia alone is used, and patients with infected tooth sockets who require extraction of the tooth.³

There is, however, another group of patients for whom sedation or general anesthesia is indicated—those in whom the fear of dental treatment is so intense as to make dental intervention impossible otherwise. It is

important to provide appropriate treatment conditions for these patients, keeping them relaxed and comfortable, and able to maintain their own airways.⁴

Midazolam, a benzodiazepine derivative with a relatively short half-life, is widely recommended in dentistry, since it appears to possess many of the properties of an ideal sedative drug.⁵ Propofol, a nonbarbiturate hypnotic drug with a very short half-life, compared favorably with midazolam when used for intravenous anesthesia,⁶ in terms of speed of recovery and hemodynamic stability. Therefore, we decided to compare the two sedatives for dental treatment.

METHODS

After receiving approval from the local medical ethics committee, we obtained the informed consent for a clinical trial from 100 American Society of Anesthesiologists (ASA) grade 1 patients who were all characterized by severe phobia for dental treatment. All had failed previous attempts at treatment with other techniques such as hypnosis, auto-suggestion, nitrous oxide sedation, or patient-controlled sedation.

The degree of fear was graded through a visual analogue scale (zero = no fear at all; 10 = maximum fear), on which none of the participants had a score of less than 7.

The patients were randomly allocated to two groups: group 1 consisted of 50 patients who underwent propofol sedation for dental treatment, and group 2 included 50 patients who were sedated with midazolam.

The sedation objective was to achieve a sedation level at which the patient was asleep but easily aroused when called. In group 1 a loading dose of propofol ranging from 0.5 to 1.5 mg/kg (mean dose, 1.1 ± 0.3 mg) was

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