

Sedation for dental and other procedures

Carol J Peden

Sara-Catrin Cook

Abstract

While sedation can improve the patient experience of unpleasant procedures, if performed poorly it has the potential to cause harm. Some authorities believe that patients' protective reflexes are impaired at any level of sedation, and sedation merges into anaesthesia in a continuum of loss of consciousness. All anaesthetists should understand the definition of 'conscious sedation', and be aware of the concepts of 'deep sedation' and 'monitored anaesthesia care', which are prevalent in the USA. This paper discusses, in particular, dental sedation guidelines and, more generally, safe sedation practice for other procedures in which sedation is given.

Keywords Dentistry; guidelines; safety; sedation

Royal College of Anaesthetists CPD matrix: 1A02, 1C02, 2D06, 2A10, 3A02, 3A07.

Definitions of sedation

- *Conscious sedation*: verbal communication is maintained and/or verbal instructions are obeyed. Amnesia may occur (patients should be warned that this may happen). Even at this level of sedation, protective reflexes may not be normal.
- *Deep sedation*: planned or unplanned transition from conscious sedation to unconsciousness, with loss of both verbal communication and protective reflexes. A precise boundary between deep sedation and general anaesthesia cannot be identified.¹
- *Sedoanalgesia*: this term has been used to describe the combination of local anaesthesia and sedation, particularly in urological procedures.
- *Patient-demand sedation*: the patient uses apparatus to administer their own sedation.
- *Monitored anaesthesia care (MAC)*: this term describes the continuous presence of an anaesthetist during procedures performed with or without sedation.

Sedation for dentistry

Most people find dental procedures unpleasant, but in modern practice the majority of procedures are performed with local anaesthesia alone. There are a number of patients, however,

Carol J Peden MD FRCA MPH is a Consultant in Anaesthesia and Intensive Care Medicine at the Royal United Hospital, Bath, UK. Conflicts of interest: none.

Sara-Catrin Cook MBBCh(Wales) FRCA is an Advanced Trainee in Intensive Care Medicine, Severn Deanery, UK. Conflicts of interest: none.

Learning objectives

After reading this article, you should be able to:

- discuss the differences between light and deep sedation and the risks associated with them
- refer to current guidelines that advise on sedation
- understand how sedation procedures can be made safer

who require sedation or general anaesthesia to cope with dental treatment. General anaesthesia for dental treatment must now be performed only in hospitals by an anaesthetist, and there have been a number of recent documents governing sedation practice in dental surgeries. Although sedation techniques may make unpleasant healthcare procedures more acceptable to patients, it is important to remember that sedation still carries the potential to cause life-threatening complications.

History of anaesthesia and sedation for dental treatment

Nitrous oxide was first used clinically by Colton and Wells to ease the extraction of teeth in 1844. Two years later, dentist William Morton administered the first ether anaesthetic at the Massachusetts General Hospital. Shortly after, on the other side of the Atlantic on 19 December 1846, the first general anaesthetic using ether in England was given by dentist James Robinson. Dental chair general anaesthetics were introduced into the UK in 1868 by TW Evans, an American dentist. Nitrous oxide remained popular for extractions as it was safer and easier to use than ether and chloroform. General anaesthesia in the 'dental chair' using nitrous oxide and other volatiles, such as halothane, remained common for many years, with an estimated 22,000,000 cases performed in dental surgeries in the peak years of its popularity between 1952 and 1958.²

However, popular as this practice may have been, there were a small but regular number of deaths in otherwise healthy people. In 1990, a report³ subsequently known as the Poswillo report, after Professor David Poswillo, Chair of the working party, urged dentists to reduce the use of general anaesthesia and consider sedation instead. This report also recognized that resuscitation practice in dental surgeries was substandard and led the Department of Health to provide funds for monitoring, defibrillators and resuscitation. Two professional clinicians were always to be present, one of whom had to be a qualified anaesthetist. All staff were to be trained in anaesthetics and resuscitation, and the dental practice was to be fully equipped with resuscitation equipment and have regular inspections.

Ten years later, however, in 2000 the Department of Health produced a document entitled *A conscious decision*,⁴ which stated that standards aimed at protecting patients from serious complications of general anaesthesia or conscious sedation for dental treatment were still not being rigorously applied or enforced. From 1996 to 1999 there were eight deaths in dental surgeries, five of whom were children. By early 2002, the long history of general anaesthesia in dental surgeries in the UK ended. General anaesthesia for dental treatment now occurs only within hospitals.

Guidelines for sedation in dental practice

These are defined in other reports.^{5,6} A key feature of all sedation guidelines⁷ is the definition of conscious sedation, of which all anaesthetists should be aware.

Conscious sedation is defined as:

A technique in which the use of a drug or drugs produces a state of depression of the central nervous system enabling treatment to be carried out, but during which verbal contact with the patient is maintained throughout the period of sedation. The drugs and techniques used to provide conscious sedation should carry a margin of safety wide enough to render loss of consciousness unlikely.

This definition is particularly important when sedation is carried out by non-anaesthetists as it is designed to protect the sedated patient from the loss of airway and subsequent potential hypoxia and hypercarbia that may arise with deep sedation. Deep sedation should be regarded as general anaesthesia, have all its safeguards and is not acceptable outside the hospital setting. In an editorial in *Anaesthesia*,⁸ Strunin commented:

‘Anaesthetists and dentists involved in conscious sedation for dental treatment outside hospital should not perpetuate the magical belief that sedative techniques are risk free. The purpose of conscious sedation is to provide sufficient pain and anxiety control to encourage the patient to accept a properly administered local anaesthetic.’

Standard techniques of conscious sedation for dentistry

Standard techniques⁹ are based on inhaled nitrous oxide and oxygen, intravenous midazolam or oral sedation with benzodiazepines.

Sedation is needed in dentistry for a number of reasons:

- to treat anxious or phobic patients who would otherwise be denied dentistry⁹
- to enable an unpleasant procedure to be carried out without distress to the patient⁹
- to avoid general anaesthesia⁹
- for patients with special needs⁶
- for medical conditions potentially aggravated by stress⁶
- for medical conditions affecting the patient's ability to cooperate⁶

Alternative sedation techniques

Despite the many guidelines and recommendations, there has remained concern that standards are still not being adhered to and that there are a number of patients whose needs are not met by the sedation techniques defined above. This led to the publication of another report from the Royal College of Anaesthetists and the Faculty of Dental Surgery of the Royal College of Surgeons in 2007 – *Standards for conscious sedation in dentistry: alternative techniques*.¹⁰ This defines which techniques are included within the terms ‘standard’ and ‘alternative’ and makes both general and specific recommendations to ensure patient safety with the latter.

Of concern to some anaesthetists may be the fact that advanced sedation techniques, for example intravenous propofol, can be

given by a dental practitioner in an isolated setting with no mandatory postgraduate qualification.

Children and sedation

For the majority of adults, many diagnostic and therapeutic procedures can be performed without sedation. However, for children and young adults this is often not the case. The fact that the procedure may be frightening, or too uncomfortable to tolerate, or that the patient may have behavioural problems, means that sedation needs to be considered under such circumstances. Of paramount importance is that sedation in children is only performed by those experienced at it, where appropriate facilities and equipment are available.^{5,10,11}

To ensure this occurs, the National Institute for Health and Care Excellence (NICE) recently published extensive guidelines with advice on best practice for performing sedation in under 19-year-olds.¹¹ Its recommendations state that it is essential that for all paediatric sedation procedures a healthcare professional and assistant trained in delivering and monitoring sedation in children and young people are present at all times with immediate access to resuscitation and monitoring equipment. The following drug regimens are included:

Drugs for *painless* procedures (e.g. imaging)

- Do not routinely use ketamine or opioids.
- First-line drugs (i.e. those with a wide margin of safety):
 - chloral hydrate in under 15 kg or
 - midazolam (not authorized for under 6-month-olds).
- Second-line drugs can be used where the above drugs have not provided sufficient sedation to allow the patient to tolerate the procedure. They are regarded as drugs with a narrow margin of safety and to be a specialist technique only delivered by a trained anaesthetist. Consider one of the following:
 - propofol or
 - sevoflurane.

Drugs for *painful* procedures (e.g. suturing, bone manipulation)

- Consider local anaesthetic in all cases.
- When the targeted sedation level is minimal or moderate:
 - nitrous oxide and/or
 - oral or intranasal midazolam.
- Where nitrous oxide and/or midazolam (oral or intranasal) are unsuitable consider:
 - intravenous (IV) or intramuscular (IM) ketamine or
 - IV midazolam ± fentanyl (to achieve moderate sedation).
- Where the above are unsuitable consider a specialist sedation technique such as propofol ± fentanyl delivered by an appropriately trained individual.

Dental procedures

- Where the procedure cannot be tolerated by local anaesthetic alone consider:
 - nitrous oxide or
 - midazolam.

Download English Version:

<https://daneshyari.com/en/article/2742317>

Download Persian Version:

<https://daneshyari.com/article/2742317>

[Daneshyari.com](https://daneshyari.com)