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Overview of Paediatric Dental Sedation: 1. Current UK Guidelines

Abstract: The use of conscious sedation in paediatric dentistry is very beneficial for the management of anxious children. It is essential that it is provided according to national guidelines in a safe and effective manner.

Clinical Relevance: Dentists carrying out conscious sedation in children must be aware of current national guidance and the most appropriate techniques to use.

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Providing dental treatment for children can often present a challenge if the child is anxious and fearful or if a potentially difficult procedure is required. The use of conscious sedation in these patients can be of great benefit.

The intention of this paper is to review the main areas of current UK guidelines for the use of conscious sedation for paediatric dental patients. The reader is directed to the individual guidelines for more detailed information.

Sedation guidelines

Guidelines have been produced to ensure sedation is provided in a safe and effective manner with the appropriate facilities, equipment, staff and training available. There are three main sets of guidance pertaining to paediatric dental sedation:

■ The main guidelines pertaining to the use of conscious sedation in the UK were produced by the Standing Dental Advisory Committee (SDAC) for the Department of Health in 2003,¹

supported by The General Dental Council in their 2005 document *Standards for Dental Professionals 2005*.² The guidance advises the use of nitrous oxide and oxygen as the standard technique for children.

■ In 2007, a further document was published providing guidance on the use of alternative sedation techniques in dentistry with some changes to the definition of standard techniques. The advice given was that intravenous midazolam with the single drug midazolam was considered to be a standard technique, for patients 12 years of age and over, provided it was administered by appropriately trained and experienced dental practitioners.³

■ In October 2010, the National Institute for Clinical Excellence (NICE) published guidelines entitled *Sedation in Children and Young People – Sedation for Diagnostic and Therapeutic Procedures in Children and Young Adults*.⁴ The document considered the provision of sedation in all fields of medicine. There are many generic aspects considered but recommendations specifically for dental procedures are limited. It is therefore pertinent that dental professionals continue to refer to the guidance laid out in 2003 and 2007 documents referred to above.^{1,3}

The SDAC document considers a child to be anyone under the age 16 years, of normal mental and physical

development, with the understanding that age of maturity is variable and due discretion should be exercised.

All the aforementioned guidance documents consider similar principles in the provision of conscious sedation in children and each subject area will be addressed with reference to the available literature.

Definition of conscious sedation

Conscious sedation has been 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 is maintained throughout the period of sedation. The drugs and techniques used to provide conscious sedation for dental treatment should carry a margin of safety wide enough to render loss of consciousness unlikely.'*¹

When undertaken in children it is important that:

*'Conscious sedation must only be undertaken by teams that have adequate training and experience in case selection, behavioural management and administration of sedation for children and only in an appropriate environment.'*¹

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Main elements of the guidelines for paediatric sedation

Drugs and technique

With regard to the sedation drugs and techniques for paediatric sedation, it is recommended that nitrous oxide/oxygen inhalation sedation should be the first choice for children who are unable to tolerate treatment with local anaesthetic alone and where more complex or invasive procedures are planned.¹⁻³

Intravenous sedation may be appropriate in a minority of cases, particularly where inhalation sedation has been unsuccessful and 'should only be provided by those trained and experienced in sedation for children and in the administration of intravenous drugs'.¹ The 2007 guidelines recommend that intravenous midazolam sedation may be used in children 12 years and over, provided the aforementioned criteria are met.³

With regard to oral and transmucosal sedation, the SDAC guidance recommends that these should: 'only be administered under appropriate circumstances by a practitioner experienced in their use.' It is important also that the practitioner is competent in intravenous cannulation.¹

Education and training

All members of the dental team providing conscious sedation must have received appropriate theoretical, practical and clinical training. The subject areas which should be covered are given in Table 1.

Documented up-to-date evidence of competency should be kept by healthcare professionals delivering sedation to include:

- Satisfactory completion of a theoretical training course on the principles and practice of sedation; and
- A comprehensive record of practical experience of sedation techniques used.

Environment and equipment for sedation

Treatment and recovery areas must be large enough for the dental team. Appropriate sedation and resuscitation equipment must be readily available.

Patient assessment

Ensure trained healthcare personnel carry out a pre-sedation

assessment and document the results in the patient's records.

To establish suitability for sedation the following areas should be considered:⁴

- Current medical condition;
- Weight (growth assessment);
- Past medical problems;
- Current and previous medication;
- Physical status (including airway);
- Psychological and developmental status.

It is advised to seek advice from a specialist (eg consultant anaesthetist) if:

- There is concern about the airway or breathing problems; or
- If the patient is assessed as American Society of Anesthesiologists (ASA) grade 3 or greater.⁵

Suitability of sedation technique

When deciding on the most suitable sedation technique, the following factors should be considered:

- What procedure is to be undertaken;
- The level of sedation required;
- Any contra-indications to sedation;
- Possible side-effects;
- Patient (or parent/carer) preference.

Informed consent

To allow the patient and his/her parents or carer to make an informed decision about the type of sedation he/she receives, verbal and written information should be provided (Figure 1).

The information should include:

- The proposed sedation technique;
- The alternative to sedation;
- Associated risks and benefits;
- Pre- and post-operative instructions.

Written informed consent should then be documented.

- The pharmacology of sedation drugs;
- Applied physiology;
- Assessment of children and young people;
- Administration of sedation;
- Monitoring during sedation;
- Care of the patient during recovery;
- Management of complications, including paediatric life support.

Table 1. Subject areas relevant to conscious sedation.

Monitoring

Inhalation sedation

Clinical monitoring of the patient without additional electronic devices is generally adequate.

Intravenous, oral and transmucosal sedation

Clinical monitoring is more rigorous, particularly for children, and it is worth noting the recommended procedures as stated in the NICE document 2010.⁴

For conscious sedation, excluding with nitrous oxide and oxygen alone, the vital signs that should be continuously monitored are given in Table 2. It is also advisable to monitor blood pressure as long as this does not stress the child unduly. All monitoring details must be clearly recorded in the patient's notes.

Recovery and discharge

On completion of the procedure, under conscious sedation, monitoring should continue until the patient is stable and fit to be discharged. Before the patient is discharged, the following criteria should be met:



Figure 1. Providing verbal and written information.

- Depth of sedation;
- Respiration;
- Oxygen saturation;
- Heart rate;
- Pain;
- Distress.

Table 2. Vital signs to be monitored.

- Vital signs have returned to normal levels;
- The patient is fully awake;
- Any nausea and pain have been adequately managed.

Conclusion

The guidance documents relating to conscious sedation for dentistry aim to promote safe and effective care. Before choosing to carry out treatment under sedation, it is imperative that the team, including clinician, sedationist and nurses, is fully conversant with the techniques being

used and the patient is being managed in the most appropriate environment. It is essential to consider each patient on an individual basis, taking into account his/her needs and suitability for the sedation techniques proposed; comprehensive documentation of all stages of the patient journey must be recorded in the clinical notes.

References

1. Standing Dental Advisory Committee. *Conscious Sedation in the Provision of Dental Care*. Department of Health, November 2003.
2. General Dental Council. *Standards for Dental Professionals*. May 2005.
3. Standing Committee for Sedation in Dentistry. *Standards for Conscious Sedation in Dentistry*. London: Royal College of Surgeons England, 2007.
4. National Institute for Clinical Excellence. *Sedation in Children and Young People – Sedation for Diagnostic and Therapeutic Procedures in Children and Young Adults*. NICE, 2010.
5. American Society of Anesthesiologists. *ASA Physical Status Classification System*. <http://www.asahq.org/clinical/physicalstatus.htm> (Accessed 5/1/12)

Book Review

Prosthodontics at a glance

By Irfan Ahmad. Chichester: Wiley-Blackwell, 2012 (126pp: £25.99). ISBN 978-1-4051-7691-0.

It must have seemed like a good idea to have all of Prosthodontics together in one book. It would need to be a good-sized book with space for all the pictures and procedures involved in Prosthodontics. The text would have to elaborate on certain points and explain important areas but also discuss controversial issues. It would be useful if it included an evidence base to the work quoted. This is in the realms of possibility but then, when you are asked to put the whole of Prosthodontics into an A4 book format of 126 pages, it is going to be a tall order.

Prosthodontics at a Glance is part of a series of books which takes a specialized dental topic and provides an overview. Its appeal is to people who do not have time to read detail but want the information quickly as a revision *aide-mémoire* for examinations.

My major concern is with the format of the book as a large volume of information has to be crammed into a small space. The result is a great deal of text, which contains highlighted keywords with no space for discussion. It becomes nothing more than a shopping list.

There is a great deal of good content contained in the book, but it is not easy to use it to its full potential,

and it is the fault of the book format. The pictures are too small and many times I wanted to 'click' on them to open a larger view and then I realized that the 'at a glance' format is ideally suited for an interactive ebook rather than a traditional book. The problem lies not with the author but with what the publishers are trying to achieve with this particular book style. It is nothing more than a 'quick sell' publication.

The layout of the book is a series of 55 chapters and each chapter contains one page of pictures on the left and the text on the right. On one of the pages there were 29 pictures! The result is that the pictures are too small and ideally a magnifying glass should have been supplied to view them. On the photography pages, the example pictures for exposure are approximately 2.3 x 1.8 cm. It is not clear what the detail is in these particular pictures but at least you know one is dark and the other is light! The choice of colour background in the occlusion chapters is poor as it is not possible, even with the magnifying glass, to see the detail! If I had bought this book, I would have felt cheated by the publishers on the book format.

What gets missed?

Two large and important areas not mentioned in the book are prevention and maintenance. They are not even listed in the index. There are several areas that should be downplayed, such as veneers and other areas, such as diagnosis leading to treatment planning, that need more input.

In summary, it is a 'smash and grab' book that gets a lot of information out as fast as possible but is not so concerned with quality. It will sell but it will also distort the learner's appreciation of what is required. If I were the author, I would look to write a book that includes more detail and discussion of the dentistry and seek out another publisher. There is a lot of potential in the subject matter but it is wasted in this format.

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