SEDATION IN PEDIATRIC DENTAL PROCEDURES

Essay submitted for partial fulfillment of

Master Degree in Anesthesia

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طرق التهدئة في عمليات أسنان الأطفال

رسالة

توطئه للحصول علي درجة الماجستير في التخدير مقدمة من الطبيب

ماركو فاروق توفيق

بكالوريوس الطب والجراحة – جامعة المنيا

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contents

List of abbrevations

BIS	Bispectral Index
BVM	Bag valve mask.
CNS	Central Nervous System
ECC	Early childhood caries.
EEG	Electroencephalogram
EMG	Electromyography
GA	General Anesthesia
GABA	Gamma-aminobutyric acid .
MAC	Minimum alveolar concentration.
NMDA	N-methyl-D-aspartate
OAAS	The Observer Assessment of Alertness/Sedation
UMSS	The University of Michigan Sedation

List of figures

List of tables

Introduction

Pediatric dentists have long sought to provide dental care to their young and disabled patients in a manner which will promote excellence in quality of care and concurrently induce a positive attitude in the patient toward dental treatment. Behavior guidance techniques have allowed most children to receive treatment in the dental office with minimal discomfort and without expressed fear. Sedation has provided others with the ability to accept treatment . However, some children and develpmentally disabled patients require general anesthesia to receive comprehensive dental care in a safe and humane fashion.

(Gazal et al., 2014).

Different medications and combinations of medications can be used to achieve the desired effect. It is also important to keep in mind the possible adverse reactions and side effects associated with each medication when choosing the sedation cocktail. The risk for adverse events after discharge may be similar to the risk for adverse events during and shortly after the sedation, so

that parents can be appropriately cautioned about the expected effects and how to distinguish them from any potential emergencies that may lead to airway obstruction. Most of these events are likely to occur within the first 8 hours, but may also occur up to 24 hours after sedation.

(Ritwik et al., 2013).

Bispectral index monitoring is a noninvasive electronic method of evaluating a patient's level of sedation. This has been used in pediatric oral surgery. It has a value of monitoring the depth of sedation in pediatric dentistry. An important application of the BIS technology appears to be in alerting the anaesthiologists when a patient reaches a deep level of sedation. It was found that a lower rate of respiratory depression during procedural sedation when emergency physicians had access to BIS.

(Haberland et al., 2011).

Aim of the work

The purpose of this study was to define modes of pediatric dental sedation and to highlight new techniques for sedation in pediatric dental procedures. In addition to build evidence on efficacy and safety of sedative drugs and value of Bispectal index in monitoring of pediatric dental sedation.

Demand and various modalities in pediatric dentistry for sedation and general anesthesia

Pediatric dentistry is a branch of dentistry that is concerned with the dental care and treatment of children.

The common pediatric dental diseases are :

1- Early childhood caries (ECC), which is the most common , with majority of children between 4 and 10 years old requiring extraction of tooth/ teeth.

2- Trauma.

3- Malocclusion.

(Hakan et al,2013).

Types of treatment in ECC :

1- Restoration.

2- Pulpotomy and Pulpectomy.

3- Veneered and steal crowns.

4- Extraction

(Hakan et al,2013) .

Behavior management in dental procedures :

It is a comprehensive methodology meant to develop a relationship between the child patient and the dentist which builds trust and diminishes fear and anxiety by several techniques as :

1- Tell-show-do

2- Modeling

3- Positive and negative reinforcement

4- Distraction

5- Voice control

6- Physical Immobilization

7- Pharmacological approach : as sedation and general anaesthesia.

(Gussy et al 2006).

I) Demand in pediatric dentistry for sedation and general anesthesia:

1) When an uncooperative child with a background of fear toward dentistry steps in office, successful delivery of dental care might become a patience testing procedure for dentist and the staff.

2) Although pediatric dentist is having so many conservative behavior management techniques, these fail to gain cooperation from difficult children at many instances.

3) The situation tends to become worse when the intervention is urgently needed. These are the circumstances when pharmacotherapeutic means of behavior management, such as general anesthesia and sedation are called in for.

(**Gustafsson et al, 2010).**

4) General anesthesia is generally avoided because of associated greater risk and higher cost and sedation is the commonly chosen modality .

5) Sedation has also shown to improve behavior and lessen anxiety for future visits ,so management of child