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Review Article

An Insight on Dental Treatment Under General Anaesthesia – A Review

Sujatha Paranna[1]*, Aditi Aneesh Kanitkar[2] and Aneesh Kanitkar[3]

[1]Associate Professor, Department of Pediatric and Preventive Dentistry, Bharati Vidyapeeth Dental College and Hospital, University of Bharati Vidyapeeth, Sangli, Maharashtra, India

[2]Assistant Professor, Department of Prosthodontics, Bharati Vidyapeeth Dental College and Hospital, University of Bharati Vidyapeeth, Sangli, Maharashtra, India

[3]Assistant Professor, Department of Prosthodontics, Yogita Dental College and Hospital, Maharashtra University of Health Sciences, Khed, Maharashtra, India

***Corresponding Author:** Sujatha Paranna, Associate Professor, Department of Pediatric and Preventive Dentistry, Bharati Vidyapeeth Dental College and Hospital, University of Bharati Vidyapeeth, Wanleswadi, Sangli, Maharashtra, India.

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Abstract

Generally, dental treatment in pediatric patients can be done by using non pharmacological behaviour management techniques without any drugs. Various behaviour management techniques are available comprising of : non pharmacological behavioural techniques, conscious sedation and general anaesthesia. General anaesthesia is utilized for pediatric dental patients to provide complete and efficient dental care when conventional techniques cannot be applied or not effective. Pediatric dentists need to recognize the requirement of dental treatment under general anesthesia and to work with an anesthesia team to provide optimal comprehensive dental care. Hence, the purpose of this review it to provide a brief insight on the use of general anaesthesia in pediatric dentistry.

Keywords: Conscious Sedation; Behavior Management; Dental General Anesthesia; Dental Care

Abbreviations

ASAPS: The American Society of Anesthesiologists Physical Status Score; ASA: American Society of Anesthesiologists; BMI: Body Mass Index; CHF: Congestive Heart Failure; COPD: Chronic Obstructive Pulmonary Disease.

Introduction

Behaviour management and any delay in growth and development should be considered as one of the factor in treating pediatric dental patient. When non pharmacological behaviour management is difficult and is not successful, alternate pharmacological methods such as conscious sedation or general anesthesia can be administered [1]. But, conscious sedation in pediatric dentistry is a debatable concerning the safe dental practice. The need for deep sedation is necessary in very young patients and patient's with delayed development [2].

General anesthesia is a drug-induced loss of consciousness during which the patient cannot be aroused, even through painful stimulation [3].

Assessment for dental general anaesthesia

Examination of the oral cavity facilitates anesthetic assessment of the patient's airway. Assessment of airway is one of the important aspect during administration of conscious sedation or general anaethesia. Oral examination is done by using Mallampati classi-

fication, in which the distance from the base of the tongue to the roof of the mouth is assessed, in a seated position with mouth open and tongue protruded. Then the airway is classified as class I to IV, higher the class there will be less clearance, intubation difficulties and obstruction [4].

In addition, dental practitioners often prefer nasotracheal intubation to allow for treatment in the oral cavity. Hence, assessment of the nasal cavity is also required. Various congenital syndromes also alter the airway anatomy [5].

The American Society of Anesthesiologists (ASA) physical status classification system was developed to offer clinicians a simple categorization of a patient's physiological status that can be helpful in predicting operative risk. The ASAPS originated in 1941 and has seen some revisions since that time [6-8]. According to literature available, patients classified as ASA I or II are acceptable candidates for sedation, but those with higher class should be treated in hospital facilities [9].

- **ASA 1**: A normal healthy patient. Example: Fit, nonobese (BMI under 30), a nonsmoking patient with good exercise tolerance.
- **ASA 2**: A patient with a mild systemic disease. Example: Patient with no functional limitations and a well-controlled disease (e.g., treated hypertension, obesity with BMI under 35, frequent social drinker or is a cigarette smoker).
- **ASA 3**: A patient with a severe systemic disease that is not life-threatening. Example: Patient with some functional limitation as a result of disease (e.g., poorly treated hypertension or diabetes, morbid obesity, chronic renal failure, a bronchospastic disease with intermittent exacerbation, stable angina, implanted pacemaker).
- **ASA 4**: A patient with a severe systemic disease that is a constant threat to life. Example: Patient with functional limitation from severe, life-threatening disease (e.g., unstable angina, poorly controlled COPD, symptomatic CHF, recent (less than three months ago) myocardial infarction or stroke.
- **ASA 5**: A moribund patient who is not expected to survive without the operation. The patient is not expected to survive beyond the next 24 hours without surgery. Examples: ruptured abdominal aortic aneurysm, massive trauma, and extensive intracranial hemorrhage with mass effect.
- **ASA 6**: A brain-dead patient whose organs are being removed with the intention of transplanting them into another patient.

Indications for dental general anaesthesia

Research conducted by Helsinki Public Dental Service in Finland concluded that the main reasons for treatment under general anesthesia were extreme non-cooperation (65%), dental phobia (37%), and an urgent need for treatment (26%) [10].

General anaesthesia is the one of the best option to deliver dental care in patients with moderate to severe intellectual disabilities as these patients will have poor oral hygiene with increased dental treatment than healthy population [11]. Patients with complex medical conditions, very young children in need of invasive dental procedures or patients with advanced full mouth caries who require comprehensive dental treatment are also candidates for GA as well as otherwise healthy patients with extreme dental phobia or severely uncooperative patients [12].

Dental treatment under GA has several advantages: it does not require a patient's cooperation, the patient is unconscious and non-responsive to pain, certain degree of amnesia is present after the procedure and drugs can be titrated to an optimal dose. The disadvantages of dental general anesthesia are patient's protective reflexes are absent, depression of vital signs and higher incidence complications during and after the procedure thus it requires specialized equipment, adequate facilities and trained team of professionals [3].

Conclusion

The success of dental general anaesthesia without any complications depends on proper case selection by a well-qualified dentist and the anesthetist team. Dental general anesthesia has advantages over conscious sedation but it should not be considered as an alternative to non-pharmacological behavior management methods. Simple procedures such as tooth extractions or simple fillings can be done under conscious sedation. Hence, this article puts an insight on considering general anesthesia for full-mouth rehabilitation of noncompliant, medically compromised and patient's with developmental delay.

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Conflict of Interest

None.

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