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General Anaesthesia in Paediatric Dentistry – An Institutional Experience

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Abstract- Background: Dentists who routinely treat children will encounter some patients whose behaviour cannot be managed adequately even with the use of medication and restrains. Young children with lacking cooperative ability having extensive dental caries or children with certain systemic conditions like cerebral palsy who cannot adequately control their own physical movements and mentally handicapped children are some of the cases where pharmacological means of behaviour management for dental treatment is indicated. In such situations dentist can opt for treatment under conscious or deep sedation or a treatment under general anaesthesia.

Objective: The purpose of this paper is to present few case series of children with both systemic condition and severe dental condition that required dental treatment under general anaesthesia.

Conclusion: General anaesthesia can assist in providing quality dental care in such patients who could not be treated otherwise.

Keywords: *general anaesthesia, pediatric dentistry, restorations, prevention.*

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General Anaesthesia in Paediatric Dentistry – An Institutional Experience

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I. INTRODUCTION

The administration of local anaesthesia, sedation and general anaesthesia (GA) is an integral part of pediatric dental practice (AAPD, 2004).¹ Young children (under 3 years) with extensive dental caries or children with certain systemic conditions like cerebral palsy who cannot adequately control their own physical movements or mentally handicapped children with whom physical restrain is impossible are few instances which require dental treatment under GA. (Anderson HK et al., 2004; Klaassen MA et al., 2008).^{2,3} Recently, extensive caries in younger age group and an inability to accept treatment under local anaesthesia were the main reasons for the use of GA, although a medical problem was the most usual reason in children aged over 9 years. In the study by Cahuana and co-workers (2003)⁴, of 1,827 patients aged below 18 requiring general anaesthesia for treatment, 50.4% had a physical or mental disability. Previous studies indicated GA for various reasons like (Vargas Roman Mdel P et al.,

2003)⁵ patients with physical disabilities with uncontrollable motor deficits making it impossible for them to collaborate; when local anaesthesia is not effective or for reasons of allergy; when there are uncontrollable epileptic crises. Patients with extensive dental treatment needs: when for some reason they must be treated in a single session; extensive orofacial trauma or fractured maxilla, with serious cranio-facial anomalies and the need for extensive dental care. This includes extractions, which are usually multiple, even in patients without other added problems. Patients who do not cooperate for reasons of fear or phobia or incapacity for cooperating due to physical or mental impairment or immaturity (age) or in cases of severe autism and psychosis with uncontrollable behaviour.

Though previous studies have suggested many beneficial effects such as reducing toothache-related behaviours and providing better quality of life, (Versloot J et al., 2006)⁶ improvements involving less pain experience, abilities to eat and sleep and positive social impact (Low W et al., 1999)⁷; GA carries a risk for morbidity and mortality and was shown to be emotionally challenging for parents (White H et al., 2003).⁸

Hence the main objective of this report was to discuss few cases of children with both systemic conditions and extensive dental conditions that required dental treatment under GA.

II. CASE No. 1



Figure 1

A six year old girl (Figure 1) reported to our clinic with the chief complaint of decayed teeth in the upper and lower, front and back region of the jaw. The child patient was known case of global developmental

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delay. On examination primary dentition was present with multiple decayed teeth (Figure 2). On the basis of history and clinical examination she was diagnosed with rampant caries. The treatment plan included oral prophylaxis, restoration of decayed teeth, bifluoride varnish application followed by extractions of grossly decayed teeth. Since the child patient was highly uncooperative with global developmental delay, the dental treatment was planned under chair-side general anaesthesia. After getting the parental consent evaluation by paediatrician, a pre-anaesthetic check-up (PAC) was done before taking up the case under chair side GA. Following the clearance given by paediatrician and anaesthetists, the child patient was admitted one day prior to the procedure. Routine blood and urine tests were performed and nil per oral (NPO) instructions were given. On the day of procedure the chair-side general anaesthesia was given by anaesthetists and the dental treatment was performed. After the finishing treatment, the child patient was shifted to intensive care unit (ICU) where the child was monitored. The following day the child patient was examined. Once satisfied the child patient was discharged.



Figure 2 : Preoperative



Figure 3 : Extracted teeth

Treatment done under General Anaesthesia

- Oral prophylaxis
- Restoration with respect to 55 53 63 65 75 83 85
- Extraction with respect to- 54 52 51 61 62 64 74 73 72 82 84 (Figure: 3)
- Bifluoride varnish application

III. CASE No. 2



Figure 4

A seven year old boy (Figure 4) reported to our clinic with the chief complaint of decayed teeth in the upper and lower, front and back region of the jaw. The child patient was known case of global developmental delay with convulsive disorder. On examination mixed dentition was present with multiple decayed teeth (Figure 5). On the basis of history and clinical examination he was diagnosed with multiple dental caries. The treatment plan included oral prophylaxis, restoration of decayed teeth, Bifluoride varnish application (Figure 6). Since the child patient was highly uncooperative with global developmental delay & seizure disorder, the dental treatment was planned under general anaesthesia. A paediatric evaluation and pre-anaesthetic check-up (PAC) was done before taking up the case under chair side general anaesthesia.



Figure 5 : Preoperative



Figure 6 : Postoperative

- Oral prophylaxis
- Pit & fissure sealants with respect to 16 26 36 46
- Restoration with respect to 55 65 75 74 84 85
- Bifluoride varnish application

IV. CASE NO. 3



Figure 7

A three year old girl (Figure: 7) reported to our clinic with the chief complain of decayed teeth in the upper and lower, front and back region of the jaw. Nothing relevant medical history was reported by parents. This was the child's first visit to dental clinics. On examination primary dentition was present with multiple decayed teeth. On the basis of history and clinical examination she was diagnosed with early childhood caries with chronic periapical abscess with

respect to 75. The treatment plan included oral prophylaxis, restoration of decayed teeth, pulpectomy with respect to 75, Bifluoride varnish application. Since the child patient was highly uncooperative with lacking cognitive ability, the dental treatment was planned under general anaesthesia. A paediatric evaluation and pre-anaesthetic check-up (PAC) was done before taking up the case under chair side general anaesthesia.



Figure 8 : Preoperative



Figure 9 : Post-operative

Treatment done under general anaesthesia

- Oral prophylaxis
- Pit & fissure sealants with respect to 64 65
- Restoration with respect to 51 61 62 73 74 81 84 85
- Pulpectomy with respect to 75
- Bifluoride varnish application.

V. DISCUSSION

According to **ADA Anaesthesia guidelines (2007)**⁹, patients considered for general anaesthesia

must be suitably evaluated prior to the start of any sedative procedure. In healthy or medically stable individuals (ASA I, II) this must consist of at least a review of their current medical history and medication use and NPO status. However, patients with significant medical considerations (e.g., ASA III, IV) may require consultation with their primary care physician or consulting medical specialist. In our cases we followed the same guidelines for a review of their current medical history and medication use and NPO status.

Because many dental patients undergoing deep sedation or general anaesthesia are mentally and/or physically challenged, it is not always possible to have a comprehensive physical examination or appropriate laboratory tests prior to administering care. When these situations occur, the dentist responsible for administering the deep sedation or general anaesthesia should document the reasons preventing the recommended preoperative management. In two of our cases the child was having systemic condition. There examination and evaluation was done after the child was admitted prior to the day of procedure of general anaesthesia.

The dentist should be responsible for sedative/anaesthetic management, adequacy of the facility and staff, diagnosis and treatment of emergencies related to the administration of deep sedation or general anaesthesia and providing the equipment, drugs and protocols for patient rescue.

VI. CONCLUSION

General anaesthesia (GA) can assist in providing quality dental care in such patients who could not be treated otherwise. General anaesthesia should not be used routinely for the convenience of the dental team, but rather should be seen as the last resource for treatment.

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