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Paediatric Tooth Extraction With or Without Triclofos Sedation- A Comparative Study.

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ABSTRACT: Any surgical procedure is invariably associated with fear and anxiety; extraction of teeth is also not an exception. When it happens to a child, patient gets even more apprehensive. Fear of unknown, fear of needle prick, previous experience, often make a child very uncooperative resulting in delaying the procedure or rescheduling it after some unsuccessful attempts [7]. Triclofos which is phosphorylated chloralhydrate, is a sedative agent. Its use as a safe and effective conscious sedative agent in different surgical procedures is well documented[13].

In this study total 50 patients (age range 7 to 13 years) who required tooth extraction were divided equally into two groups. After getting institutional ethical committee clearance and parenteral consent patients of one group received triclofos per orally 30 minutes prior procedure.

Behaviour of each patient was observed during the procedure and one score was given against the observation according to Visual Analogue Scale (VAS). Duration of each procedure was also recorded.

Children who got triclofos were significantly cooperative (p=•003) than the children of other group. Less time were needed for extraction of teeth of the children who were given triclofos.

KEYWORDS: Tooth extraction, Conscious sedation, Triclofos, Behavioural rating scale.

I. INTRODUCTION

Tooth extraction has a strong association with fear and anxiety. Particularly for a paediatric patient it is very difficult for a surgeon to work out the procedure. Uncooperative resisting behaviour of the child delays the procedure. Many a time surgeon has to reschedule it after some unsuccessful, may be forceful attempts.

Conscious sedation is defined as a drug induced depression of consciousness during which patients respond purposefully to verbal commands and are able to maintain a patent airway and protective reflexes. It is often used during diagnostic and minor surgical procedures to relax patients and minimize fear, anxiety and discomfort [4].

Nitrous oxide, benzodiazepines, sevoflurane, ketamine, propofol, opioid, sufentanil are some of the commonly used conscious sedatives for surgical procedures[2].

Chloralhydrate and triclofos are two popular products for paediatric sedation in dentistry. Ease of use, oral route application, minimum side effects make these products very convenient for paediatric sedation[8].

Triclofos comes in a palatable syrup form and causes less gastric irritation. So, it is a better option than chloralhydrate. Triclofos is a pro drug which is metabolised in the liver into the active drug trichlorethanol[10].

II. AIM

Aim of this study is to assess the efficacy and safety of triclofos as a sedative agent for children undergoing tooth extraction.

III. METHODOLOGY

Ethical clearance was obtained for this study from the institutional ethical committee. Total fifty healthy, potentially cooperative (according to Wright modification of Frankl's behavioural rating scale[18]) children who required tooth extraction were selected from the outpatient department. Medically compromised children and children with history of allergy and hypersensitivity were excluded from the study.

Written consent was obtained from parents and/or guardian of each child after describing the pros and cons of the whole procedure verbally as well as in written form.

Physical status evaluation and pre-anaesthetic check-up of each child was done by an anaesthetist before scheduling appointment and on the day of tooth extraction.

Demographic details of each child; age, weight, medical status, were recorded.

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Children were randomly distributed into two groups; group A and group B. Each group having 25 children each.

Group A children received 50mg/kg body weight triclofos syrup (500mg/5ml) 30 minutes prior to procedures[5].

Tooth extraction was done after achieving anaesthesia by injecting 2% lignocaine with 1:200000 adrenaline.

All the procedures were done by the same surgeon. Behaviour of each child was observed throughout the procedure by a pedodontist who acted as a blind observer in the study; and he rated his observations in Visual AnalogueScale (VAS).

Figure 1: Visual AnalogueScale :

Figure 1: Visual Analogue Scale (VAS, 1969).

Visual Analogue Scale (1969):

Patients were discharged after getting discharge approval from the anaesthetist. Parents and/or guardians were given an emergency no. for contact. After 24 hrs. history of any adverse effect or any untoward incident was recorded over a telephonic conversation.

For both the groups pulse and oxygen saturation were measured at the base level and during the entire procedures at 10 minutes interval and at the time of discharge.

Surgical procedures were divided into two segments. First one was time between comfortable sitting of the patient till injecting anaesthesia (S1). Second one was time between achieving anaesthesia till completion of extraction (S2).Duration of these two segments of the surgical procedures were recorded separately.

Data obtained were recorded and statistical analysis were done by Independent sample t-test and Mann-Whitney U test.

IV. RESULTS

Both the groups had equal no. of participants. There were no significant differences in demographic details between the two groups.

Total 5no. of patients had post-operative episode of vomiting as reported by their respective parents over telephone. Parents of 3 patients reported post-operative anorexia. Distribution of these 8 patients were non-significant in between two groups.

None of the patients had oxygen saturation less than 95% at any point of time when this parameter was recorded.

Mean pulse rate of patients of one group was not significantly different from patients of the other group. VAS score of the participants showed group A patients were significantly cooperative than group B. (Table 1)

Table 1: Comparison of VAS

	Group A	Group B	P value
Mean	4.78	6.16	0.003
Standard Deviation	1.68	2.66	

Significantly less time was needed for the group A patients in the first segment of the procedure(S1).

Whereas, time taken in the second segment of the procedure(S2) for one group of patients were not significant from the other group. (table 2).

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Table 2: Comparison of procedural times in between two groups

	Group A	Group B	P value
S1 (in seconds)	275.52 ± 116.89	175.38 ± 44.32	<0.001
S2 (in seconds)	203.94 ± 53.88	205.98 ± 55.81	0.885

V. DISCUSSION

Triclofos is a commonly used sedative agent. It is a time-tested product with reasonable efficacy and safety. Its use as a potent sedative agent in paediatric surgery as well as in diagnostic or invasive procedure is well documented[5] [13] [17].

In many studies researchers have compared its efficacy, safety, patient acceptance with other commonly used sedative agents like midazolam, nitrous oxide, chloralhydrate etc.[1] [3] [9] [12].

Its patient acceptance is best among all sedative agents as it comes in a palatable syrup form and unlike chloralhydrate it does not cause gastric irritation and nausea[8].

Subramaniam P. et al opined that both nitrous oxide - oxygen and triclofos sodium were observed to be effective sedative agent for successful and safe use in 5 to 10-year-old dental patients. Patients showed a better acceptance of the oral route of triclofos than inhalation route of nitrous oxide[12].

By definition the term behaviour is broadly used to include the entire complex of observable and potentially measurable activities including cognitive and physiological classes of response.

In this present study we have used visual analogue scale to quantify behaviour of the child patients undergoing tooth extraction. There are several behaviour ratingsscales. Frankl behaviour rating scale (1962), Global rating scale (1965), Corah's dental anxiety scale(1968), Visual analogue scale(1969), categorical rating scale given by Nazif(1971), Wright's modification of Frankl scale(1975), behaviour profile rating scale(1978),Houpts behaviour rating scale (1985), Ohio University behavioural rating scale, Venham's behavioural rating scale(1990) are some of the commonly used scales[15]. Venham et al in the year 1990 presented a six-point behavioural rating scale which provides more details of child's positive and negative behaviour. This scale is user friendly and easy for statistical analysis[16]. VAS consists of 10 cm horizontal line with two extreme poles: Unsatisfactory and satisfactory (Figure 1). It can be used both as a self-report and as an observational tool. A vertical line across the horizontal line is used to mark the operator's assessment of the child's behaviour. The point where the vertical line crosses the horizontal line is measured with a ruler to give a score to the nearest centimetre[15]. The VAS validation for use with anxious dental patients when compared to other scales, it is found to be more sensitive and simpler to use. Reliability of VAS as assessed by ICC appears to be high[11]. To avoid biasnessIn this study, a pedodontist worked as a blind observer and he rated patient's behaviour in VAS scale without knowing the group of the patients (who is getting triclofos and who is not).

Caries and related pulpal pathology are the most common causes for paediatric tooth extraction. Orthodontic treatment, over retained deciduous teeth, trauma, pathology are among the other causes[14] [7].

T.Alsheneifi et al opined that type of tooth requiring extraction in paediatric patients depends on age of the subject. It is primary incisor for the patients aged 3 to 5 years, primary molar for 6 to 9 years and molars for 10 to 13 years. Child behaviour also changes with age. In this study age distribution of the patients in between two groups were insignificant[14].

According to Wright's classification potentially cooperative child means the child who has the potential to cooperate, but because of the inherent fears (subjective / objective) the child does not cooperate[18].For this study potentially cooperative patients who needed tooth extraction had been selected by a pedodontist from the outpatient department.

Age, sex, previous experience, time and length of appointment are some of variables which influence behaviour.

In this present study age and sex wise distribution of the patients of one group were not significantly different from that of the other group.

People with high dental fear, children and adults, may prove difficult to treat, require more time.

Uncooperative, resisting nature of the apprehensive, anxious patients increase the

procedural time. In this present study though tooth extraction for all the patients were uneventful intra alveolar type; more time were required for that of the group B patients.

In this study, patients who got triclofos were more cooperative in behaviour during tooth extraction. Less time was required for the group A children for injecting local anaesthesia.

VI. CONCLUSION

Triclofos is a potent and safe sedative agent in paediatric tooth extraction. Patients who got triclofos were more cooperative in behaviour during tooth extraction. Less procedural time was required for the tooth extraction of the children who got triclofos.

Conflict of interest – none.

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