

Corticosteroids commonly prescribed in pediatric patients undergoing full-mouth rehabilitation under general anesthesia: A retrospective study

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ABSTRACT

Dental treatment under GA is a compelling method for giving therapeutically important consideration to those youngsters who might be intellectually juvenile, exceptionally restless, medicinally split the difference, or unfit to get treatment in a customary office setting. While the traditional work on concerning corticosteroids is likely innocuous and perhaps gainful with lower prophylactic dosages and the nature of oral admission was additionally unaffected. The study aimed to investigate commonly prescribed corticosteroids in children undergoing full-mouth dental management under general anesthesia. A single-centered retrospective study among pediatric patients treated under general anesthesia of the age group of 0–13 years. The sample size is 124. Data were collected and tabulated. Data were statistically analyzed using the SPSS software version 23. Chi-square test and Pearson correlation were done using the software and $P < 0.05$ was considered statistically significant. The results show that 79.67% commonly prescribed dexamethasone, whereas 20.33% use hydrocortisone, providing the age groups between 0 and 3 has higher prescribing of corticosteroids. From this study, it is concluded that since the P value was more than 0.05, there is no significant statistical difference that has been analyzed. Dexamethasone is the commonly prescribed corticosteroid in children undergoing full-mouth rehabilitation under GA, followed by hydrocortisone.

Key words: Children's, corticosteroids, general anesthesia, novel approach

INTRODUCTION

General sedation is a reversible condition of obviousness created by sedative specialists, with loss of torment

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sensation over the whole body. General sedation for the most part utilizes a combination of intravenous medications and breathed in gasses. Dental specialists treat most pediatric patients satisfactorily utilizing conduct strategies. Nonetheless, certain youngsters cannot get treatment through these strategies. Full-mouth rehabilitation under general anaesthesia (GA) may be a recuperation treatment for children.^[1] It is been just about 30 years that sweeping dental recuperation under GA has been proposed to pediatric people.^[2,3] In a couple of cases, dental GA is the most realistic and common sense strategy for treatment.^[4] Consistent with

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Table 1: Demographic details

Age	2.89+2.45
Gender	Male - 47.15% Female - 52.85%

the American Academy of Pediatric Dentistry (AAPD), the children who will likely not persevere through dental treatment on the chairside should be managed under GA. Children who are lacking cooperative ability including children of very young age and those encountering physical and mental insufficiency are managed using GA to supply remedially crucial care.^[5] The weight of dental GA contenders are adolescents that experience the evil impacts of one prevalent shortcoming, Early childhood caries (ECC), and are by and large sound.^[6-9] This rising natural market is inherently associated with more risks and intricacies. Most pediatric populations report fights following dental GA frameworks of various earnestness.^[10] Dental torment, trouble in eating, nasal dying, throat uneasiness, nose distress, rest modification, shortcoming, sluggishness, parchedness, fever, queasiness, regurgitating, roughness, runs, and clogging are a few announced postoperative inconveniences. These unfavorable reactions could likewise be limited, yet not totally wiped out (AAPD).^[11] Practitioners ought to have top-to-bottom information on the specialists planned to utilize and their related complexities.

Corticosteroids are one of the broadly involved drugs in dentistry. The reasoning for its utilization is its mitigating likewise immunosuppressive properties. Corticosteroids are normally endorsed in youngsters going through dental treatment under broad sedation. The use of glucocorticosteroids is recommended to stop postoperative sickness and spewing. Moreover, the glucocorticosteroids-related lessening of postoperative agony, likewise as enhancements in mindset and exhaustion are demonstrated. Ordinarily utilized steroids are hydrocortisone, dexamethasone, methylprednisolone, prednisolone, and so on. Corticosteroids are viewed as a two-sided deal to the patients.^[12] Regardless of their different benefits, they even have extreme incidental effects. Secondary effects are guided to the sort and measurement of the medication and length of treatment. These medications are one of the chief abused drugs inside the kind of measurement. Dental corticosteroids could likewise be retained through the coating of the mouth and, whenever utilized time after time or for a really long time period, may impede development in youngsters, disabled balance, and hypertension. Albeit not those aftereffects might happen on the off chance that they truly do happen they will require clinical consideration. The review intends to investigate the usually recommended corticosteroids in kids going through dental treatment under broad sedation. Our research and knowledge have resulted in high-quality publications from our team.^[13-18]

MATERIALS AND METHODS

Study design

The present study was designed to be conducted as a retrospective study in a single dental institution in Chennai. The study was conducted after getting approval from the Institutional Ethical Committee, Saveetha Dental College-IHEC/SDC/PEDO/21/011.

Data collection

Data for the present retrospective study were collected from the records of children <13 years of age, who underwent dental treatment under general anesthesia between September 2020 and February 2021 in the institution. Records of 124 children who fulfilled the inclusion criteria were analyzed. Demographic details and commonly prescribed corticosteroids were collected and transferred into Excel sheets.

Statistical Analysis

Statistical software used was SPSS IBM version 23.0 (IBM SPSS Statistics, Version 20.0, Arming, NY: IBM Corp.). Statistical analysis used was descriptive statistics of frequency distribution. The correlation analysis used was the Chi-square test. The Pearson's Chi-square value and *P* value were determined. A significant *P* value was set at <0.05. All the data were collected and analyzed statistically and graphically represented and discussed.

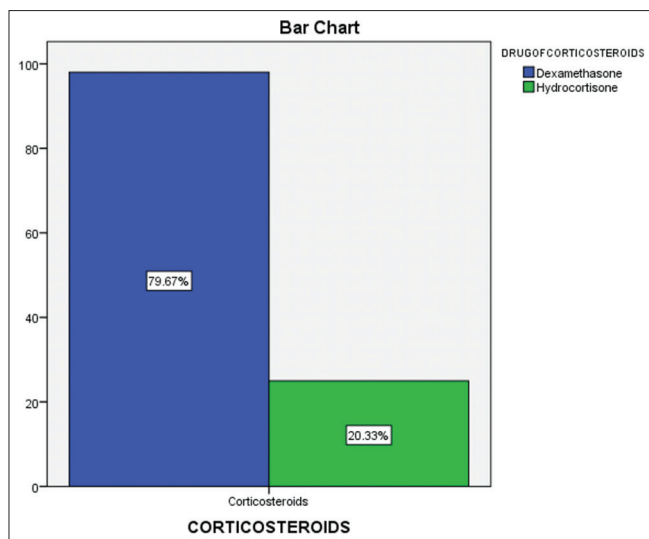
RESULTS

The demographic details of the participants of the present study is depicted in Table 1. In the present study, it was seen that Dexamethasone was the corticosteroid that was most commonly used in about 79.67% of the cases, whereas hydrocortisone was used in 20.33% of the cases. This is depicted in Graph 1. The bar chart in Graph 2 represents the correlation between age group and predominantly prescribed corticosteroids in children undergoing dental treatment under general anesthesia. X-axis represents the age group; Y-axis represents the number of participants. Chi-square test was done and the association was found to be statistically insignificant. Person's Chi-square value is 4.700, df: 2, *P* value: 0.864 (>0.05) hence statistically insignificant. Blue represents dexamethasone; green represents hydrocortisone. Providing age group between 0 and 3 has higher prescribing of corticosteroids.

DISCUSSION

Among 124 children aged between 0 and 13 years, who fulfilled the inclusion and exclusion criteria 47.15% were boys and 52.85% were girls.

According to the study, the commonly prescribed corticosteroid in the pediatric population undergoing



Graph 1: Percentile distribution of commonly used corticosteroids

full-mouth dental management under general anesthesia was dexamethasone (79.67%).

The apparently constructive outcome of dexamethasone on the postoperative nature of recuperation is clinically conceivable due to its calming properties and antiemetic properties that decrease torment and expand following oral strategies. Hooley and Hohl announced that the utilization of corticosteroids is huge, yet urgent and no big surprise, cortisol (hydrocortisone) is known as the life-safeguarding chemical.^[19]

Dexamethasone is viewed as one of the ideal medications being promptly accessible and modest, with immunosuppressive properties that forestall and treat postoperative sickness, retching (PONV), advanced hunger, and stifle inflammation. The generally antagonistic impacts of dexamethasone are intriguing and its advantages out-gauge the dangers implied.

CONCLUSION

Dexamethasone is the commonly prescribed corticosteroid in the pediatric population undergoing full-mouth dental management under general anesthesia, followed by hydrocortisone.

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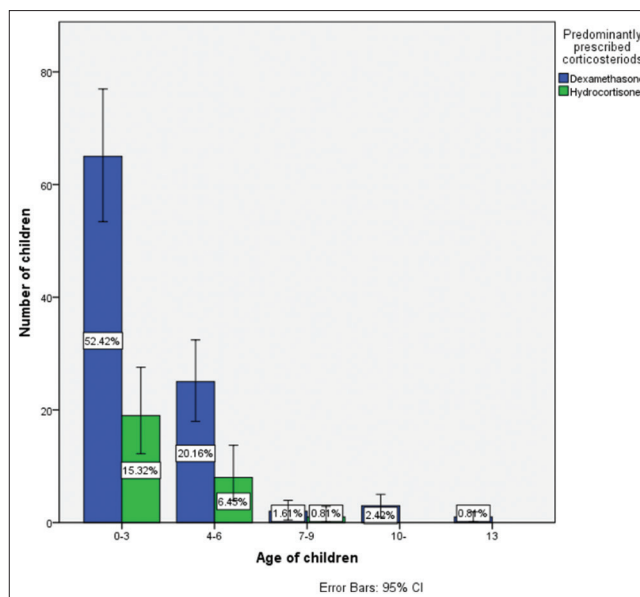
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Conflicts of interest

There are no conflicts of interest.



Graph 2: Percentile distribution of commonly prescribed corticosteroids between age groups

REFERENCES

- Schroth RJ, Morey B. Providing timely dental treatment for young children under general anesthesia is a government priority. *J Can Dent Assoc* 2007;73:241-3.
- Lee JY, Vann WF Jr., Roberts MW. A cost analysis of treating pediatric dental patients using general anesthesia versus conscious sedation. *Anesth Prog* 2001;48:82-8.
- Lee PY, Chou MY, Chen YL, Chen LP, Wang CJ, Huang WH. Comprehensive dental treatment under general anesthesia in healthy and disabled children. *Chang Gung Med J* 2009;32:636-42.
- Thikkurissy S, Crawford B, Groner J, Stewart R, Smiley MK. Effect of passive smoke exposure on general anesthesia for pediatric dental patients. *Anesth Prog* 2012;59:143-6.
- Cantekin K, Yildirim MD, Delikan E, Cetin S. Postoperative discomfort of dental rehabilitation under general anesthesia. *Pak J Med Sci* 2014;30:784-8.
- Leonard MM, Monheim Leonard M. General anesthesia in dental practice. *Anesthesiology* 1960;21:576-7.
- Lau KT, John J, Eaton KA, Keightley AJ. Service evaluation of the paediatric dental general anaesthesia service in NHS Lothian. *British Dental Journal* 2020;27:1-5.
- Tiku AM, Hegde RJ, Swain LA, Shah FR. To assess and create awareness among anesthetists regarding prevention and management of injuries to the teeth and their associated structures during general anesthesia. *J Indian Soc Pedod Prev Dent* 2014;32:58-62.
- Gaynor WN, Thomson WM. Changes in young children's OHRQoL after dental treatment under general anaesthesia. *Int J Paediatr Dent* 2012;22:258-64.
- Aarab G, Lobbezoo F. Dental changes in obstructive sleep apnea patients under oral appliance treatment are progressive in nature. *Journal of Dental Sleep Medicine* 2015;2:35-6.
- Kumar SP, GIRIJA AS, Priyadharsini JV. Targeting NM23-H1-mediated inhibition of tumour metastasis in viral hepatitis with bioactive compounds from *Ganoderma lucidum*: A computational study. *Indian Journal of Pharmaceutical Sciences* 2020;30;82:300-5.
- Ravindiran M, Praveenkumar C. Status review and the future prospects of CZTS based solar cell – A novel approach on the device

- structure and material modeling for CZTS based photovoltaic device. *Renew Sustain Energy Rev* 2018;94:317-29.
13. Parthibha KM, Johnson P, Ganesh M, Subhashini AS. Evaluation of salivary profile among Adult Type 2 diabetes mellitus patients in South India. *J Clin Diagn Res* 2013;7:1592-5.
 14. Paramasivam A, Vijayashree Priyadharsini J. Novel insights into m6A modification in circular RNA and implications for immunity. *Cell Mol Immunol* 2020;17:668-9.
 15. Ponnaiyandurai M, Rajeshkumar S, Vanaja M, Annadurai G. *In vivo* type 2 diabetes and wound-healing effects of antioxidant gold nanoparticles synthesized using the insulin plant *Chamaecostus cuspidatus* in albino rats. *Can J Diabetes* 2019;43:82-9.e6.
 16. Nambi G, Kamal W, Es S, Joshi S, Trivedi P. Spinal manipulation plus laser therapy versus laser therapy alone in the treatment of chronic non-specific low back pain: A randomized controlled study. *Eur J Phys Rehabil Med* 2018;54:880-9.
 17. Hawkins RJ, Swanson B, Kremer MJ. An integrative review of factors related to patient satisfaction with general anesthesia care. *AORN J* 2012;96:368-76.
 18. Lin S, Levin L, Emodi O, Abu El-Naaj I, Peled M. Etodolac versus dexamethasone effect in reduction of postoperative symptoms following surgical endodontic treatment: a double-blind study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2006;101:814-7.
 19. Hooley JR, Hohl TH. Use of steroids in the prevention of some complications after traumatic oral surgery. *J Oral Surg* 1974;32:864-6.