

Age and Gender Analysis of Children Treated Under General Anaesthesia

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ABSTRACT:

Background: Dental treatment for pediatric patients can result from a lack of cooperation in dental treatment especially for dental rehabilitation procedures and sometimes examination of the patient and radiographic interpretation. Regarding the reduced incidence of harmful outcomes from general anesthesia, and using deep or moderate sedation for treating young pediatric patients, treatment can be efficiently and safely carried out with the help of well-trained providers. The

main aim of the study is to analyse the age limit and gender of the young children treated under general anesthesia in a dental setup.

Method: It is a single centered retrospective study. Data was collected from the patient record system used in private dental institutions and following parameters such as gender, age of the children treated under GA were recorded. Patient details were analysed between June 2020 to January 2021 out of which 142 patients who fall under the inclusion as well as exclusion criteria were included in the study. The data obtained for the study was statistically analysed using SPSS software.

Results: From this study, it is evident that children of age group under 4-6 years are highly treated under general anesthesia. Comparing male and female children, the percentage of female children treated under general anesthesia was found to be higher than male children.

Conclusion: It can be concluded that children less than 6 years of age are commonly treated under General anesthesia for dental rehabilitation and girls are found to be more commonly treated under General anesthesia when compared to boys.

Keywords: general anesthesia, age, gender

INTRODUCTION:

General anesthesia is referred as the state of unconsciousness which was produced by person known as anesthesiologist under which the patient feels loss of sensation of the body during the procedure. In addition to this, the patient undergoing treatment with the help of GA remains still, that is the patients are unable to move (1). Uncooperative or phobic patients, young patients who cannot cooperate, patients with special healthcare needs such as Autism, failure of treating under sedation, laughing gas are treated under general anesthesia (2–4). The number of visits for dental treatment can be reduced, even some of the long procedures can be completed within one day of dental visit with the help of general anesthesia (5–7). In certain cases, general anesthesia can be used as a mode of sedation for dealing with extensive early childhood caries damage in uncooperative children (8,9). However, post-operative instruction, periodic recall and review has to be done in order to avoid any positive rehabilitation outcomes (10).

Patients coming with highly complicated health problems, young children under the age of 3 with advanced full mouth caries sometimes are diagnosed with high caries detection and require a comprehensive and well planned dental treatment. The children coming under above mentioned criteria are mainly treated under GA (11). Patients with dental phobias are also treated with help of general anesthesia comparatively with conscious sedation. Patients with disabilities are difficult to tolerate in normal dental setup due to physical problems (12–14). Therefore, they often require general anesthesia as a mode of sedation to facilitate safe treatment (15,16). Patients with physical and mental disabilities have a high chance of involving themselves in anesthetic complications because of potential drug interactions (17).

Children are highly prone to severe conditions as the result of undergoing dental treatment with the help of general anesthesia (18–20). Children may develop respiratory tract infections, adenotonsillar hypertrophy because of treating with GA (21–23). Individuals with learning difficulties are treated under general anaesthesia owing to poor dental hygiene in order to obtain better results (24,25). Pediatric patients are mostly phobic towards usage of needles, and develop fear towards dental treatment (26–30).

Children undergoing treatment under GA has several advantages. The use of general anesthesia does not require a patient's cooperation, the patients unresponsive to pain (31,32). On the other side, treating children with the help of general anesthesia has some disadvantages such as the absence of protective reflexes, depression of vital signs, delayed gastric emptying, increase in intra and postoperative complications. Increase in autonomic activity with increased propensity to arrhythmias and vasovagal responses are observed (33,34). The aim of the study was to analyse the age and gender of the children treated under general anesthesia. Our team has extensive knowledge and experience in research which helps to translate into high quality publications (2,3,5–7,12–14,19,35–38) (22,23,26,27,29,30,39)

MATERIALS AND METHOD:

The study is a institutional study which was conducted in saveetha dental college, Chennai, India. Ethical approval has been received from Institutional review board just prior to the beginning of the study.

Children between the age groups of 1 and 18 years who underwent dental treatment under general anesthesia from September 2020 to February 2021 were included in the study. A total of 142 children treated under general anesthesia and under recovery state were monitored for their physiological parameters. The compiled data was put in excel sheet and SPSS software with CHI-Square test and pearson correlation has been done, where p value was set as 0.05 as the level of significance.

RESULTS:

A total of 142 datas of children falling under the age group of less than 18 years who have undergone general anesthesia for oral procedure were taken from the records DIAS. The demographic details of the collected records along with the age of the pediatric patient and gender of the patient treated under general anesthesia were recorded.

Children with the age group of 4 and 6 years are commonly treated with the help of general anesthesia(Figure 1). Females are more commonly treated under General anesthesia for dental rehabilitation (Figure 2). No association was found between the age gender and dental treatment under General anesthesia. (Figure 3)

DISCUSSION:

In the present study it was seen that children below 6 years of age were more commonly treated under General anesthesia for dental treatment compared to older children. 54.93% of the children treated under General anesthesia were between 4 and 6 years and 30.99% of the children were below 3 years. The results of the present study shows that children lacking cooperative ability(0-3 years) and uncooperative children (4-6years) were posted under General anesthesia for dental treatment. In a similar study, more than half (54%) of the children were younger than 6 years of age(40), mainly due to dental fear and uncooperativeness (66%)(41). Approximately out of seven children, one child were mainly exposed to general anesthesia particularly under the age of 3 years and according to FDA warning, one child out of four children comes under high risk category(42). Over half of the children were aged five years and under. Treatment was done for fewer highly non co-operative children under general anesthesia in order to obtain the outcome of the dental procedures performed(43). This result could be explained by the fact that children in this age group are unable to adapt to dental treatment under local anaesthesia.

With regards to age, it was seen that 50.7% of the children undergoing treatment under General anesthesia were females. In a similar study done in Australia, about more than 50% of the female children are treated with general anesthesia compared to male children(44). In a contradictory article, 53.9% of males and 46.1% of female children are treated with general anesthesia, in which male children are highly treated under GA(45). Gender of the patient is one of the important factors influencing recovery from general anesthesia(46,47). Girl children require general anesthesia than boy children for loss of consciousness(48,49) and to maintain anesthesia during surgery(50,51). The above information suggests gender-related differences in drug disposition and sensitivity to general anesthesia drugs. Both of the above conditions may result in a mild hypnotic state of general anesthesia.

Correlation between the age and gender of the children being treated using general anesthesia for dental rehabilitation shows that females were more commonly treated under General anesthesia between the ages of 0-6 years and in children above 6 years it was seen that males were more commonly treated under General anesthesia for dental treatment. However no statistically significant difference was obtained, ($p= 0.363$). There has been an increased use of GA for pediatric dental treatments below 6 years of age(52). Comparing male and female pediatric patients, female pediatric patients are highly treated under general anesthesia(53). But in an article, its is stated that male children are highly treated under general anesthesia compared to female children which is contradictory to the above result(54).

The study is a single centered study which includes a small population. The study does not include information about consanguineous marriage, prenatal problems and does not include any ethnic groups, races.

CONCLUSION:

Limitation of the study include children less than 6 years of age are commonly treated under general anesthesia for dental rehabilitation and girls are found to be more commonly treated under General anesthesia when compared to boys.

ACKNOWLEDGEMENT:

The authors would like to thank Saveetha institute of medical and technical science for the support to conduct the study.

CONFLICT OF INTEREST : Authors declare no potential conflict of interest.

SOURCE OF FUNDING:

The present project was supported by the following agencies

- Saveetha Dental college,
- Saveetha Institute of Medical and Technical Sciences,
- Saveetha University
- Jayaa auto parts private LTD.,

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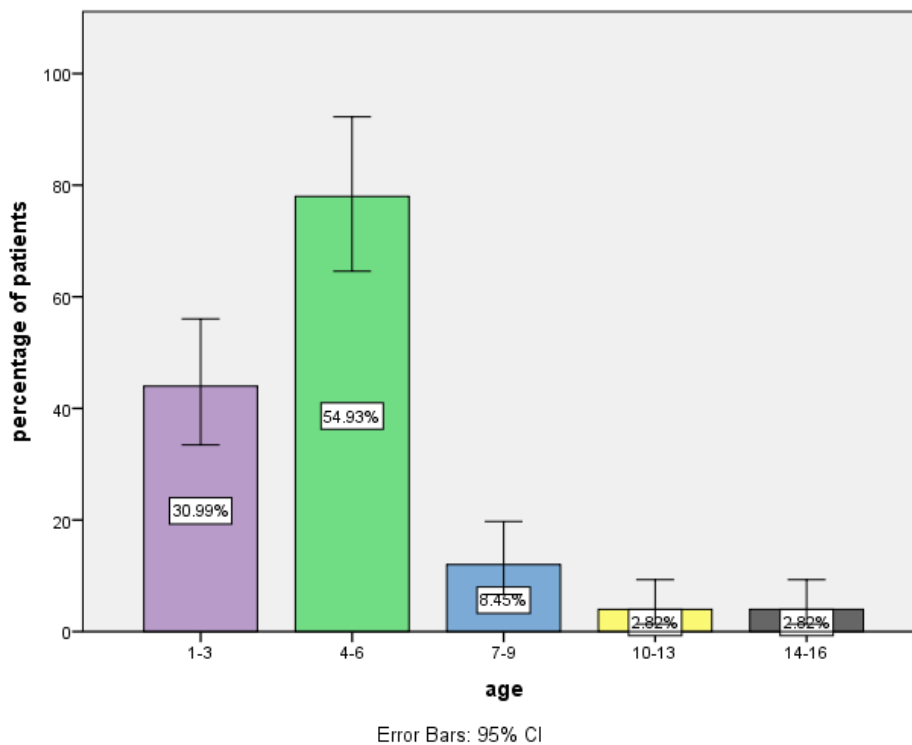


Figure 1: Bar graph depicting the age distribution of the children undergoing treatment with the help of general anesthesia. The percentage of patients are plotted against the Y axis and the age of the patients are plotted under the X axis. purple colour denotes age group of 1-3 years, light green colour denotes age group of 4-6 years, light blue colour denotes age group of 7-9 years, yellow colour denotes age group of 10-13 years and grey colour denotes age group of 14-16 years.

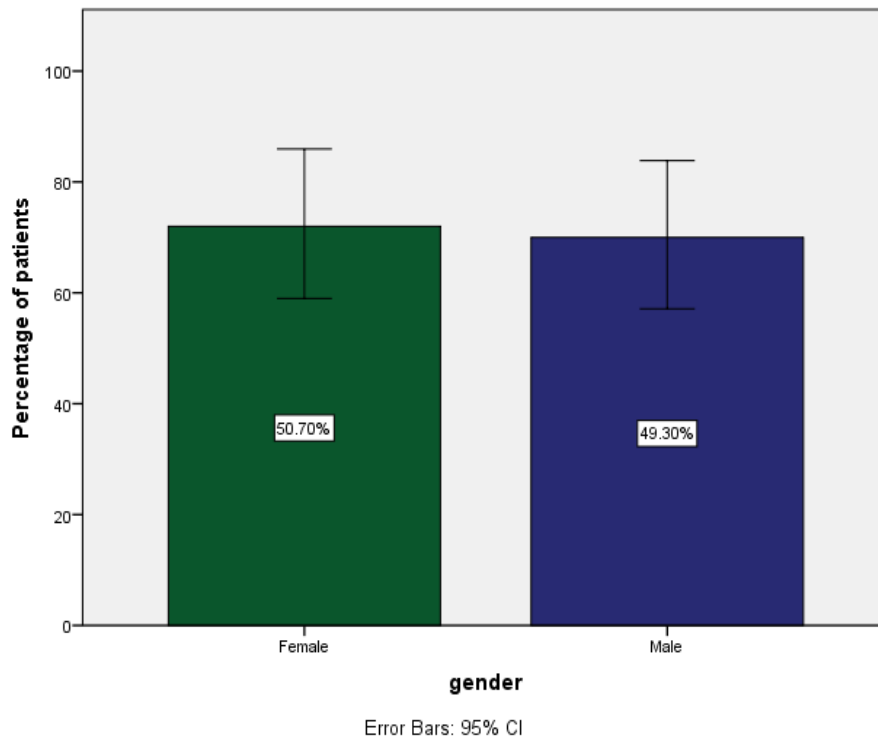


Figure 2: Bar graph depicting the gender distribution of the children undergoing treatment with help of general anesthesia in a dental set up. The percentage of patients are plotted against the Y axis and the gender of the patients are plotted under the X axis. Green colour denotes female and blue colour denotes male.

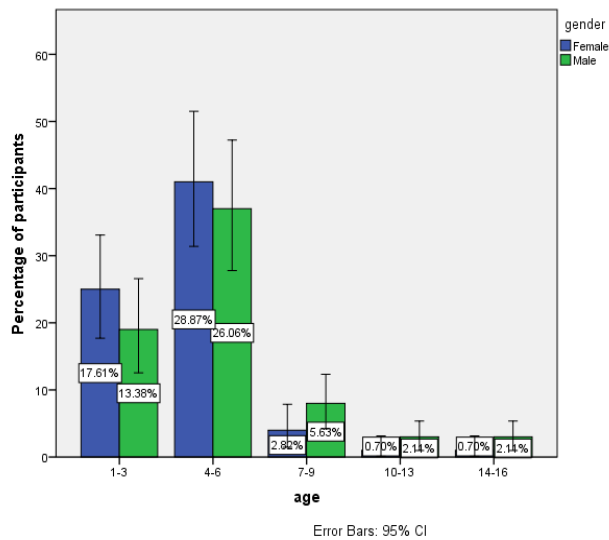


Figure 3: Bar graph depicting association of gender and age of the patient treated under general anesthesia while performing dental treatment, with P value = 0.363 > 0.05 which is statistically insignificant.