

EVALUATION OF ANESTHESIA DURING EMERGENCY PROCEDURE IN ANESTHETIC MANAGEMENT OF PEDIATRIC PATIENTS WITH COVID-19 INFECTION**Mohammad Makbul Hossain^{*1}, Sabarin Ahamed², Khalifa Mahmud Tarik³, Shakil Mahmud Chowdhury⁴, Naima Islam Trisna⁵**¹Associate Professor & Head, Department of Pediatric Cardiac Anesthesia & ICU, Bangladesh Shishu Hospital and Institute, Bangladesh.²Medical Officer, Gynae and Obs, Shaheed Suhrawardy Medical College Hospital, Bangladesh.³Senior Consultant, Cardiac Surgery, Bangladesh Shishu Hospital and Institute, Bangladesh⁴Medical officer, Cardiac Anesthesia, Bangladesh Shishu Hospital and Institute, Bangladesh.⁵Honorary Medical Officer, Dhaka Dental College, Bangladesh.***Corresponding Author: Mohammad Makbul Hossain**

Associate Professor & Head, Department of Pediatric Cardiac Anesthesia & ICU, Bangladesh Shishu Hospital and Institute, Bangladesh.

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ABSTRACT

Introduction: COVID-19 is a highly transmissible novel viral illness caused by SARS CoV-2. This disease poses a huge challenge to healthcare systems around the world. The fatality rate is higher among the pediatric population with the presence of coexisting diseases. **Objective:** To evaluate the anesthesia during emergency procedure in Anesthetic management of pediatric patients with covid-19 infection. **Method:** This prospective study was done at Bangladesh Shishu hospital and Institute where relevant information was obtained from pediatric surgeons & anesthesiologists currently practicing a pretested questionnaire and transcribed to Google form where 60 pediatric patients information were collected from June 2020 to March 2021. **Results:** During the study, majority belonged to 6-9 years age group, 60% and 40% were male and female respectively. 70% surgery cases were under emergency condition. In addition, 65% had asymptomatic condition of covid-19 infection. Day cases were performed in only 21% of the patients. In addition, general surgery undergone in 41% cases followed by 11% were of burn and plastic surgery, 13% were of cardiac surgery. In addition, orthopaedics and spine surgery cases were of 11%. Apart from this 49% had overall good ASA score, and majority (50%) got anesthesia for ≤ 1 hour. **Conclusion:** Due to pandemic situation in our hospital, majority cases were emergency surgery. Because of a specialized care team, we were able to maintain good communication with the whole team and the patients' family. This, combined with experience gained from the high volume of cases performed, made our approach successful.

KEYWORDS: Covid-19 pandemic, covid-19 infection, Anesthesia managements.**INTRODUCTION**

COVID-19 is a highly transmissible novel viral illness caused by SARS CoV-2. It was reported to have emerged in Wuhan, China, in December 2019 but later spread to other parts of China and other countries throughout the world.^[1-2] This disease poses a huge challenge to healthcare systems around the world.

Commonly affecting adult patients, pediatric patients have represented a very small group within the disease population, with less than 10% of global COVID-19 cases. In addition, the fatality rate is low in the pediatric population. Asymptomatic cases have been proven common in children, although a number have developed severe respiratory symptoms.^[3] The fatality rate is higher among the pediatric population with the presence of coexisting diseases such as heart anomalies, immunodeficiency, and cancer. Especially during

surgery and anesthesia management surgeons faced too much challenges during covid-19 pandemic times.^[4-5]

In this study our main goal is to evaluate the anesthesia during emergency procedure in anesthetic management of pediatric patients with covid-19 infection.

OBJECTIVE

To evaluate the anesthesia during emergency procedure in anesthetic management of pediatric patients with Covid-19 infection.

METHODOLOGY

This prospective study was done at *Bangladesh Shishu hospital and Institute* where relevant information was obtained from pediatric surgeons & anesthesiologists currently practicing in *this Institute* using a pretested questionnaire and transcribed to Google form where 60

pediatric patients' information were collected from June 2020 to March 2021.

All collected data were coded and input in SPSS-25 for further analysis. Both descriptive and inferential statistics done. Descriptive statistics included frequency distribution, percent, graph, tables & figures.

RESULTS

Table-1 shows age distribution of the patients where majority (55%) belonged to 6-9 years age group. The following table is given below in details:

Table 1: Age distribution of the patients.

Age group	%
2-5 years	19%
6-9 years	55%
10-13 years	26%

Figure-1 shows gender distribution of the patients where 60% were male. The following figure is given below in details:

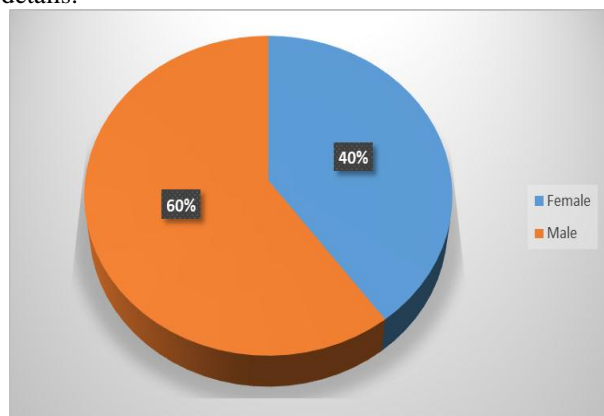


Figure-1: Gender distribution of the patients.

Table-2 shows urgency and specialty of surgery where 70% surgery cases were under emergency condition, whereas day cases performed in only 21%. In addition, general surgery performed in 41% cases followed by 11% burn and plastic surgery, 13% cardiac surgery and 11% cases were of orthopaedics and spine surgery. The following table is given below in details:

Table 2: Urgency and Specialty of surgery.

Urgency	%
Emergency case	70%
Day case	21%
Other elective case	9%
Specialty	%
General surgery	41%
Burns and plastics	11%
Cardiac	13%
Craniofacial and neurosurgical	9%
Ear nose and throat	8%
Orthopaedics and spine	11%
Others	6%

Table-3 shows ASA status of the patients where majority had overall good ASA score, 49%. The following table is given below in details:

Table 3: ASA status of the patients.

ASA	%
1	49%
2	26%
3	15%
4	10%

Figure-2 shows distribution of patients according covid-19 symptoms where most (65%) of the patients were asymptomatic. The following figure is given below in details:

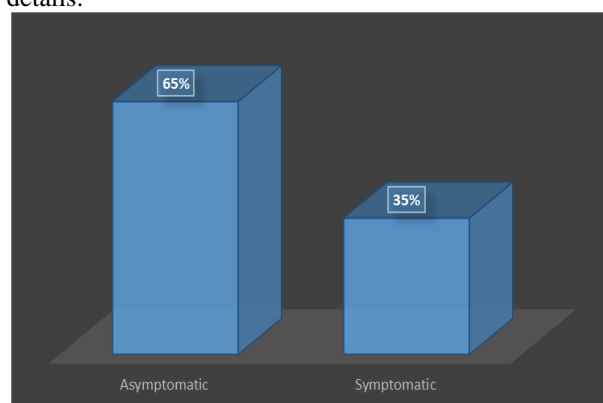


Figure 2: Distribution of patients according covid-19 symptoms.

Table-4 shows duration of anesthesia where majority (50%) got anesthesia for ≤ 15 min whereas only 6% cases got anesthesia for long time, 45-60 min. The following table is given below in details:

Table 4: Duration of anesthesia.

Duration	Anesthesia Encounters (%)
15-30 mins	50%
30-45 mins	29%
45-60 mins	15%
< 60 min	6%

Table-5 shows distribution of the study group according to distribution of IV placement incidence and endotracheal intubation where anesthetics were administered with endotracheal intubation in 45% cases, and 30% cases had IV access. The following table is given below in details:

Table 5: Distribution of the study group according to distribution of IV placement incidence and endotracheal intubation.

Endotracheal intubation	45%
IV placement	30%

DISCUSSION

Our data suggest that in children undergoing surgery during the endemic phase of COVID-19, a combined approach of 14-days household isolation, pre-operative

testing and clinical screening confers comparable levels of safety and peri-operative outcomes to surgery undertaken before the COVID-19 pandemic. Within our institution, patients most likely 41% undergone general surgery followed by 11% burn and plastic surgery cases, 13% cardiac surgery cases and 11% were of orthopaedics and spinal surgery cases. And majority were in emergency situation which was supported by one study where general surgery was 25% followed by 18% burns and plastic, 9% cardiac and 11% orthopaedics and spine surgery cases.^[7]

We found the risk of peri-operative infection of SARS CoV-2 in children presenting for elective surgery to be low, which is reassuring that a visit to hospital for surgery has been hypothesized to represent a child's highest risk of contacting SARS CoV-2.

Though children with peri-operative infection may not necessarily present back to the hospital where their surgery took place, the low peri-operative infection rates observed within our institution likely to reflect the high proportion of day-case procedures where there is likely limited exposure to staff and the wider hospital environment.^[8]

During a pandemic, there will always be a proportion of children requiring urgent, complex, time-critical operations. Similarly, some elective surgery cannot be postponed indefinitely as there are potentially serious adverse consequences of delay in some children and young people, including irreversible impairment of neurodevelopment and other avoidable morbidity.

It is important to develop a strategy to maintain elective work safely while minimizing the existing backlog of work and avoid damaging effects to families and the wider community. The COVID-19 pandemic presents continued uncertainty due to the ongoing fluctuations in disease prevalence.⁹ During the surgery anaesthetics were administered with endotracheal intubation in 45% cases, and 30% cases had IV access. Whereas in other studies, the number of these approaches was quite similar.^[10-12]

However, the COVID-19 pandemic highlights the need for benefit from big data through the creation of national platforms that facilitate real-time information sharing of paediatric anaesthetic guidelines and local paediatric anaesthesia practice through electronic and app-based systems, as in critical care.^[13]

CONCLUSION

Due to pandemic situation in our hospital, majority of the cases were emergency surgery. Because of a specialized care team, we are able to maintain good communication with the whole team and the patients' family. This, combined with experience gained from the high volume of cases performed, made our approaches successful.

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