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MONITORED ANESTHESIA DURING EMERGENCY PROCEDURE IN ANESTHETIC MANAGEMENT OF PEDIATRIC PT WITH COVID-19 INFECTION

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ABSTRACT

Background: *When it comes to caring for patients who have been diagnosed with or are at risk for contracting COVID19, pediatric anesthesiologists play a crucial role. Anesthetists serve as the proceduralists on many hospitals' COVID19 intubation teams, and these professionals may be found in the Intensive Care Unit (ICU) and Emergency Room (ER).* ***Objective:*** *In this study our main goal is to evaluate the anesthesia during emergency procedure in Anesthetic management of pediatric patients with covid-19 infection.* ***Method:*** *This prospective study done at tertiary medical college and hospital where relevant information was obtained from pediatric surgeons (consultants and senior registrars) currently practicing in tertiary hospital using a pretested questionnaire and transcribed to Google form where 100 pediatric patients information were collected from May 2020 to March 2021.* ***Results:*** *During the study, majority were belong to 6-9 years age group, 55% and 60% were male. 70% surgery cases were under emergency condition. In addition, 65% had asymptomatic condition of covid-19 infection. Whereas day cases seen in only 21%. In addition, general surgery seen in 31% cases followed by 21% were burns and plastics, 13% were cardiac surgery, Orthopaedics and spinal in 11% cases. Apart from this 49% had overall good ASA score, and majority got anesthesia for ≤ 15 min, 50%.* ***Conclusion:*** *Due to pandemic situation our hospital majority cases were emergency surgery however because of a specialized care team that we are able to maintains good communication with the whole team and the patients' family. This, combined with experience gained from the high volume of cases performed make 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-2.1 It was reported to have emerged in Wuhan, China, in December 2019 but later spread to other parts of China and other countries of the world.[1-2] This disease poses a huge challenge to healthcare systems around the world.

Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Anyone can get sick with COVID-19 and become seriously ill or die at any age.

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 occurring within the pediatric age group. In addition, the fatality rate is low in the pediatric population. Asymptomatic cases have proven common in children, although a number have developed severe respiratory symptoms.[1-3]

Babies under age 1 might be at higher risk of severe illness with COVID-19 than older children.

Newborns can get COVID-19 during childbirth or by exposure to sick caregivers after delivery. If you have COVID-19 or are waiting for test results due to symptoms during your stay in the hospital after childbirth, wear a well-fitting face mask and have clean

hands when caring for your newborn. Keeping your newborn's crib by your bed while you are in the hospital is OK, but maintain a reasonable distance from your baby when possible. When these steps are taken, the risk of a newborn getting COVID-19 is low. However, if you are severely ill with COVID-19, you might need to be temporarily separated from your newborn.

Infants who have COVID-19 but no symptoms might be sent home from the hospital, depending on the circumstances. It's recommended that the baby's caregivers wear face masks and wash their hands to protect themselves. Frequent follow-up with the baby's health care provider is needed — by phone, virtual visits or in-office visits — for 14 days. Infants who test negative for COVID-19 can be sent home from the hospital.

The fatality rate is higher among the pediatric population with the presence of coexisting diseases such as heart anomalies, immunodeficiency, and cancer. Specially during surgery and anesthesia management hospital surgeon faced so much challenges in 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 done at tertiary medical college and hospital where relevant information was obtained from pediatric surgeons (consultants and senior registrars) currently practicing in tertiary hospital 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 coding and input in SPSS-25 for further analysis. Both descriptive and inferential statistics done. Descriptive statistics included frequency distribution, percent, graph, tables, figures.

RESULTS

In table-1 shows age distribution of the patients where majority were belong to 6-9 years age group, 55%. The following table is given below in detail:

Table-1: Age distribution of the patients.

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

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

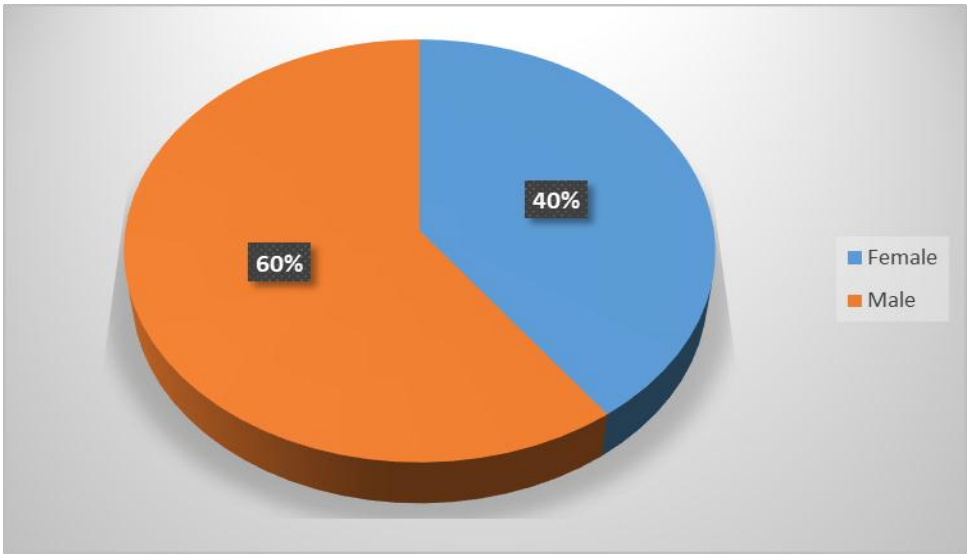

Figure-1: Gender distribution of the patients.

In table-2 shows urgency and Specialty of surgery where 70% surgery cases were under emergency condition. Whereas day cases seen in only 21%. In addition, general surgery seen in 31% cases followed by 21% were burns and plastics, 13% were cardiac surgery, Orthopaedics and spinal in 11% cases. The following table is given below in detail:

The following table is given below in detail:

Table-2: Urgency and Specialty of surgery.

Urgency	**%**
Emergency case	70%
Day case	21%
Other elective case	9%
Specialty	**%**
General surgery	31%
Burns and plastics	21%
Cardiac	13%
Craniofacial and neurosurgical	9%
Ear nose and throat	8%
Orthopaedics and spinal	11%
Others	6%

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

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

In figure-2 shows distribution of patients according covid-19 symptoms where most of the patients were asymptomatic, 65%. The following figure is given below in detail:

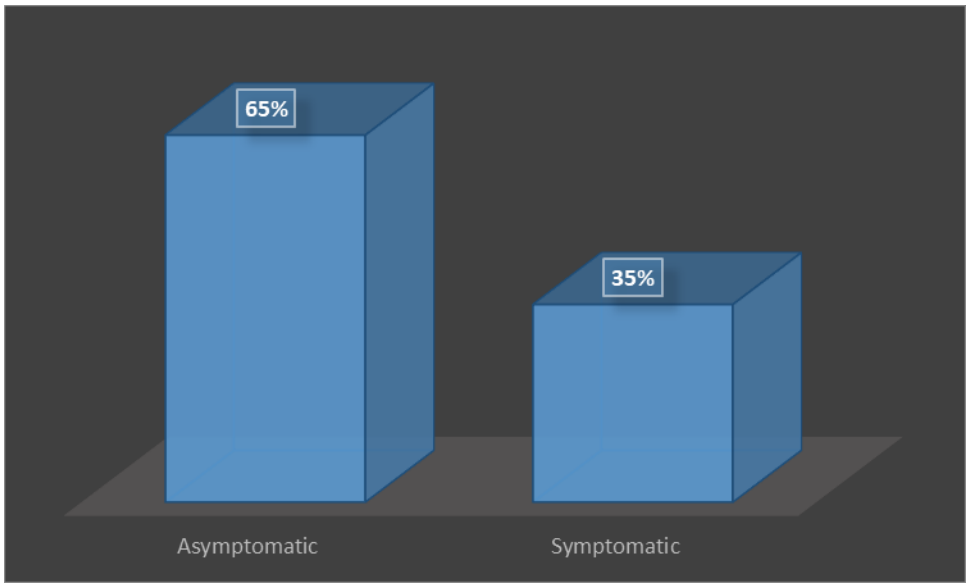

Figure-2: Distribution of patients according covid-19 symptoms.

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

Table-4: Duration of anesthesia.

	Anesthesia Encounters (%)
≤ 15 min	**50%**
15 – 30 min	**29%**
30 – 45 min	**15%**
45 – 60 min	**6%**

In table-5 shows distribution of the study group according to distribution of IV placement incidence and laryngeal mask airway (LMA) where anesthetics were administered with a laryngeal mask airway (LMA) in 45% cases, and 30% cases have IV access. The following table is given below in detail:

Table-5: Distribution of the study group according to distribution of IV placement incidence and laryngeal mask airway (LMA).

laryngeal mask airway (LMA)	**45%**
IV placement	**30%**

DISCUSSION

Coronavirus variants, including those with mutations that make them more contagious, continue to spread, particularly in areas with low rates of community COVID-19 vaccination.

For children too young to be vaccinated (and adults who have not received coronavirus vaccines) it is important to follow proven COVID-19 precautions such as mask wearing when in public, indoor places to reduce the chance of becoming infected with the coronavirus.

It appears that women infected with the coronavirus can, in very rare cases, pass the disease to her baby. Infants can also become infected shortly after being born. According to the U.S. Centers for Disease Control and Prevention (CDC), most newborns who test positive for the coronavirus have mild symptoms or none at all, and recover, but serious cases have occurred. Pregnant women should take extra precautions, including talking to your doctor about getting a COVID-19 vaccine, to avoid the coronavirus.

Our data suggest that in children undergoing surgery during the endemic phase of COVID-19, a combined approach of 14-day 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 to undergone general surgery followed by 21% were burns and plastics, 13% were cardiac surgery, Orthopaedics and spinal in 11% cases. And majority were emergency situation. Which was supported by one study where general surgery was 25% followed by 18% were burns and plastics, 9% were cardiac surgery, Orthopaedics and spinal in 15% 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 given that a visit to hospital for surgery has been hypothesised to represent a child's highest risk of contracting 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 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 minimising the existing backlog of work and avoiding 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 anesthetics were administered with a laryngeal mask airway (LMA) in 45% cases, and 30% cases have IV access. Where as other studies number of these approaches was quite similar.[10-12]

However, the COVID-19 pandemic highlights the need for NHS theatre services to 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]

Pediatric anesthetists have an important role to play during the COVID-19 outbreak. Good organization, communication, and remaining calm in a crisis are common attributes of anesthetists, and these are the attributes required for healthcare leaders during a pandemic.

Preventing healthcare workers from infection is vital, and maintaining the physical and mental health of the hospital workforce is essential to best serve the health needs of the community. Careful planning and training, including simulation, are the cornerstones of safe management of COVID-19 children.

CONCLUSION

Due to pandemic situation our hospital majority cases were emergency surgery however because of a specialized care team that we are able to maintains good communication with the whole team and the patients' family. This, combined with experience gained from the high volume of cases performed make our approach successful.

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