Original Research Article

Study of Clinical and Demographic Profile of the SARS-CoV-2 in Children in Tertiary Care Hospital, Hassan

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Abstract

Background and Objective: Corona virus disease 2019 (COVID-19) is a disease that emerged from the in December 2019 caused by severe acute respiratory syndrome coronavirus-2 (SARS-COV-2). Globally, there was an explosion of the outbreak of SARS-COV-2 infections, triggering a major health concern all over the world. This study describes the clinical and demographic characteristics of COVID-19 children in a tertiary care centre. **Methods:** This is a prospective observational study, all COVID suspect children admitted in the pediatric ward were screened for SARS-CoV-2 by reverse transcription-polymerase chain reaction, all the children who were positive were enrolled for the study done between May 1, 2020 and August 31, 2020 and their demographic and clinical parameters were analyzed. The demographic and epidemiological data was collected and analyzed **Results:** Out of 140 children with COVID 19 infection admitted in COVID hospital, 77(55%) were male, 116(82.8%) were asymptomatic, 20(14%) children presented with fever, 6(4%) children with sore throat, 7(5%) children with cough and 1 child had significant co morbidity (seizure disorder). Mean HR was 116bpm(0-5yrs), 86bpm (6-10yrs) and 82 bpm (11-18yrs), Mean Spo2 was 97% in all age groups,1(0.8%) case required ventilator or pressure support, 2(1.4%) children required O2 support, 78(55.7%) children were given antiviral drugs. 139 (99.2%) children were successfully discharged and 1 child with co morbidity succumbed to death. **Conclusion:** The study highlighted those children are less vulnerable and at a lower risk of developing COVID-19 and when they contract the COVID-19 infection, they have a milder or asymptomatic disease than adults with few or minimum complications.

Keywords: COVID, Children, Infection, Corona Virus.

Introduction

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). In December 2019, a series of acute respiratory diseases occurred in Wuhan, China, now called COVID-19. The disease has rapidly spread from Wuhan to other regions. The World Health Organization (WHO) named the disease COVID-19. On January 30, 2020, the WHO declared it a Public Health Emergency of International Concern and on April 11, 2020[1-3].The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been spread rapidly around the world and also all age groups were infected with this novel virus. In the first reports of coronavirus disease 2019 (COVID-19), the frequency of disease in children was lower than adults. Clinical manifestations of COVID-19 are rare or absent in children and adolescents. The clinical presentation of pediatric patients may differ from those of the adults and can range from asymptomatic to acute upper respiratory tract infection, gastrointestinal symptoms with shock, or coagulation dysfunction in severe case[4].The most common complaint of children is usually nonspecific symptoms of upper respiratory tract infection, such as mild to moderate fever and cough. Similar to adults, children with co morbidities including chronic kidney and lung diseases, malignancies, diabetes, obesity, anemia, immune disorders, heart disease, and congenital malformations are more likely to develop severe conditions from COVID-19[5].

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Objective

To describing the demographic and clinical characteristics of children with COVID-19 admitted to tertiary care covid hospital in Hassan district of Karnataka state.

Materials and Methods

This was prospective observational study conducted in a dedicated pediatric COVID-19 Tertiary care hospital in Hassan, Karnataka between May 1, 2020, and August 31, 2020. The age group was between 1 month and 18 years of age and those who turned COVID RTPCR positive were included in the study. A total of 140 study subjects were enrolled for the purpose of the study. Informed consent of all parents of the admitted children was taken on admission. Pro forma sheet was filled with defining the demographic profile and clinical presentation and the recommended laboratory findings. Laboratory profile mainly hemogram, N: L ratio, D-Dimer studies, CRP, Troponin and chest X-ray was sent. The children were monitored daily for changes in disease severity.

Results

Out of 140 children with COVID 19 infection admitted in COVID hospital, 77(55%) were male, 116(82.8%) were asymptomatic, 20(14%) children presented with fever, 6(4%) children with sore throat, 7(5%) children with cough and 1 child had significant co morbidity (seizure disorder). Mean HR was 116bpm (0-5yrs), 86bpm (6-10yrs) and 82 bpm (11-18yrs), Mean Spo2 was 97% in all age groups,1(0.8%) case required ventilator or pressure support, 2(1.4%) children required O2 support, 78(55.7%) children were given antiviral drugs. 139 (99.2%) children were successfully discharged and 1 child with co morbidity succumbed to death.

Table 1: Demographic Study of Sars-Cov-2 in Pediatric Population

Symptoms	Frequency	Percentage
Asymptomatic	116	82.8%
Fever	20	14%
Sore Throat	6	4%
Myalgia	5	3.5%
Cough	7	5%
Cold	4	2.8%

Table 2: Distribution of Study Subjects Based On the Vital Parameters in Different Age Groups

0-5 Years	
Vitals	**Mean**
Heart Rate (Bpm)	116
Spo2 (%)	98
Temperature (F)	98.2
Respiratory Rate (cpm)	20
Blood Pressure (mmhg)	90/60
CFT	< 3sec
6-10 Years	
Heart Rate (Bpm)	86
Spo2 (%)	95
Temperature (F)	98
Respiratory Rate (cpm)	18
Blood Pressure (mmhg)	100/60
11-18 Years	
Heart Rate (Bpm)	82
Spo2 (%)	97
Temperature (F)	98.6
Respiratory Rate (cpm)	18
Blood Pressure (mmhg)	116/76
CFT	<3 Sec

Table 3: Distribution of Study Subjects Based on Lab Investigations in Different Age Groups

0-5 Years	
Investigation	**Mean**
Neutrophils (%)	37.23
Lymphocytes (%)	50.42%
Blood Sugar(mg/dl)	96
LDH(u/l)	399
Ferritin(ng/dl)	23.86
D-Dimer(mg/dl)	89.26
Troponin(ug/dl)	0.009
6-10 Years	
Neutrophils (%)	43.16
Lymphocytes (%)	43.43
Blood Sugar(mg/dl)	82
LDH(u/l)	150
Ferritin(ng/dl)	22.7
D-Dimer(mg/dl)	29.02
Troponin(ug/dl)	0.0012
11-18 Years	
Neutrophils (%)	52.62
Lymphocytes (%)	35.61
Blood Sugar(mg/dl)	96
LDH(u/l)	136
Ferritin(ng/dl)	51.42
D-Dimer(mg/dl)	98.14
Troponin(ug/dl)	0.0156

Table 4: Distribution of Study Subjects Based on Treatment in Different Age Groups

0-5 Years		
Treatment	**Requirement**	**Non Requirement**
Ventilator	0(0%)	34 (100%)
Oxygen	1 (2.94%)	33 (97.06%)
Antiviral	16 (47.05%)	18(52.94%)
Antipyretic	16 (47.05%)	18(52.94%)
Antibiotics	16(47.05%)	18(52.94%)

Supplements	32(94.11%)	2(5.88%)
6-10 Years		
Ventilator	0(0%)	38 (100%)
Oxygen	0 (0%)	0(0%)
Antiviral	11 (28.9%)	27(71.1%)
Antipyretic	22 (57.8%)	16(42.2%)
Antibiotics	13 (34.2%)	25 (63.8%)
Supplements	36(94.7%)	2(5.3%)
11-18 Years		
Ventilator	0(0%)	38 (100%)
Oxygen	1 (1.4%)	67(98.6%)
Antiviral	51 (75%)	17(25%)
Antipyretic	17 (25%)	51(75%)
Antibiotics	51 (75%)	17 (25%)
Supplements	60 (88.2%)	8 (11.8%)

Table 5: Distribution of Study Subjects Based on the Final Outcome

Outcome	Number	Percentage
Discharged	138	98.5%
Death	2	1.5%

Discussion

In this study, we report the demographics and clinical course of 140 children with COVID 19 infection admitted at dedicated COVID hospital in Hassan district of Karnataka. Out of 140 children, only 2 children required O2 support, which reflects markedly decreased burden of disease from COVID 19 infection in children compared to adults. Similar to other earlier reports, our study showed that the clinical course of COVID 19 infection to be far less severe and outcomes to be better in children compared to adults. Similar to that reported in adults, most deaths attributed to pre existing co morbidities.

Jun Yasuhara conducted a review study[6] that analyzed data from 46 case reports and case series including 114 juvenile patients with confirmed SARS = CoV2. infection, it was discovered that the most common COVID19 had minor clinical symptoms in children. Fever, cough, and rhinorrhea are common respiratory symptoms or asymptomatic signs and symptoms Infants who were diagnosed with COCID When compared to the other age groups, dyspnea occurs more frequently in children with older age groups.

In another study done by yudan et al[7] who did a meta-analysis of clinical characteristics of COVID 19 in children comprising 7780 pediatric patients, fever (59.1%), and cough (55.9%) were the most common symptoms 19.4% of children were asymptomatic which was similar to our study. Deaths of 7 children were reported (0.09%) and 11 children (0.14%) qualified for inclusion criteria for multisystem inflammatory syndrome in children, however, we reported only 1.5% of the subjects with mortality in our study. This review study reflects on the evidence that COVID-19 diagnosed children have an uncomplicated course and excellent prognosis which reflects in our study too.

In another study done by Mundlod et al[8] out of 158 confirmed COVID-19 positive pediatric cases, history of high-risk contact was seen in 21 cases, history of international travel in 6 cases, history of residing in containment areas in 17 cases and co-existing disease was found in 3 cases. Fever was seen in 49 cases, cough in 21 cases, sore throat in 3 cases, shortness of breath in 6 cases, headache in 1 case, rhinorrhea in 7 cases, nausea/vomiting in 7 cases, abdominal pain in 4 cases, and diarrhea in 6 cases which is similar and comparable to our study findings also.

In Another study done by Alharbi M et al[9] in Saudi Arabia Among of 742 patients, 71 (9.6%) were hospitalized. The median age of patients was 75 months old and 53.6 were male. The most common symptoms at the onset of illness were fever (32.5%), respiratory symptoms (21%) and gastrointestinal symptoms (10.3%). Among the entire cohort, 7 patients were admitted to PICU with COVID-19 related symptoms.

In another study done by Shekerdemian Lara S et al[10] of the 48 children with COVID-19 admitted to participating PICUs, 25 (52%) were male, and the median (range) age was 13 (4.2-16.6) years. Forty patients (83%) had significant preexisting comorbidities; 35 (73%) presented with respiratory symptoms and 18 (38%) required invasive ventilation.

Conclusion

In conclusion, our findings support prior reports that children infected with SARS-CoV-2 had minor clinical symptoms and a favourable prognosis. Children are less sensitive to COVID 19 and have a decreased likelihood of contracting it, according to our findings. They also have a milder or asymptomatic condition than adults with little or no problems when they get COVID 19. We also came to the conclusion that respiratory symptoms were frequently followed by gastrointestinal issues. Longitudinal studies are needed in the future to better identify which patients are at a higher risk of severe inflammation and multiorgan failure.

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