

Clinical Profile and Outcome of Pediatric COVID-19 Patients

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Abstract

Introduction: Coronavirus complaint (COVID-19) is a severe acute respiratory contagious complaint coronavirus 2 (SARS-CoV2) infection in children manifests as mild to moderate complaint with low casualty. There's limited information about vulnerability to SARS CoV-2 infection, clinical profile and outgrowth among immunocompromised children in Bangladesh.

Objective: To assess the clinical findings and outcome of paediatric patients with confirmed COVID-19 positivity.

Materials and Methods: This observational study was carried out at the Department of Pediatrics, 250 Bed General Hospital, Gopalganj, Bangladesh from October 2020 to March 2021. The inclusion criteria were Patients aged day 1 to 15 years, and all patients confirmed Covid-19 positive by reverse transcription polymerase chain reaction (RT-PCR). Finally, 56 patients were enrolled in this study. The medical data was analyzed from previously taken questionnaire for each patient. Demographic data, medical history, contact history was included in the questionnaire.

Results: Fifty six patients were included in the study over a period of six months. Mean age was 59.96 ± 43.24 months, 48.2% were male and 51.8% were female. Among fifty six RT-PCR positive cases, thirty seven (66%) were symptomatic and Nineteen (34%) were asymptomatic. Patients got admitted with fever (44.6%), cough (25%), diarrhoea (12.5%), Nausea and vomiting (10.7%). Out of nineteen cases 33.9% were admitted for less than 10 days, 44.6% were admitted for 10 - 14 days and 21.4% were admitted for more than 14 days. Fifteen (26.7%) children were associated with co-morbid conditions like congenital heart disease (10.7%) followed by bronchial asthma, hereditary hemolytic anaemia, adenoid and ROP. 17.8% patient's had leucopenia, 12.5% lymphopenia and raised CRP, patients had, 12.8% patient had neutrophilia. There was Serum Ferritin high in only 7.1% cases. Our study 30.3% patients had normal Chest X-Ray and mild lesion 57.1%, bilateral consolidation 8.9% and 3.5% patchy opacities and six cases eight (14%) cases had positive CRP. Out of the fifty six cases three (5.3%) cases had high S. creatinine level with a mean of 0.47 ± 0.19 mg/dl and seven (12.5%) cases had high S. procalcitonin level with mean procalcitonin level was 0.0656 ± 0.4 ng/ml. Chest X-ray was done in all

cases and in all cases these were normal, therefore no HRCT chest was done. Out of all fifty patient 55 patients were improved and discharged. Only one child died in this cohort.

Conclusion: In a significant proportion of children, COVID-19 infection has an asymptomatic course, which contributes greatly to the spread of the complaint. Clinical profile of COVID 19 in children was mild and the outgrowth was good. Fever and cough were the predominant findings of COVID-19 affected children in this study. While COVID-19 causes morbidity similar as storms in the paediatric population, the complaint had a more severe course in children with an underpinning serious complaint and may indeed affect in death.

Keywords: COVID-19; Children; SARS-CoV-2; Outcome

Introduction

Covid disease (COVID-19) is an extreme intense respiratory irresistible infection brought about by a newfound Covid known as SARS CoV-2. Coronavirus initially showed up in Hubei area of Wuhan, China, as a group of pneumonia instances of obscure beginning. Following quick spread of the infection, it was pronounced a worldwide pandemic by the World Health Organization (WHO) on 11 March 2020 [1]. In Bangladesh absolute 475,789 cases affirmed as COVID 19, complete 6,807 cases kicked the bucket, and 395,960 individuals have been recuperated up to Dec 06, 2020 [2]. The clever COVID-19 brought about by the extreme intense respiratory condition Covid 2 (SARS-CoV-2) has since turned into a developing general wellbeing crisis of worldwide concern. Clinical signs of COVID-19 are interesting or missing in kids and young people [3]. The COVID-19 side effects appear to be less serious in kids than in grown-ups [4]. Youngsters have been accounted for to establish 2.4% of the multitude of cases in China and 1.7% in the USA [5,6]. Regardless of reports that the sickness for the most part has a milder course in kids and mortality is intriguing, it has been accounted for that the gamble of dreariness and mortality of COVID-19 can be high in youngsters with basic problems, for example, pneumonic brokenness or invulnerable concealment [7,8]. Studies from various nations across the globe has proven that the clinical spectra of COVID 19 territories from gentle to direct side effects of hack, sore throat, migraine, rhinorrhea, regurgitating, loose bowels, fever, and windedness to signs, and side effects complex of extreme pneumonia, intense respiratory trouble disorder, septic shock, and additionally numerous organ disappointment [9-12]. Coronavirus is a clever sickness which has a viral beginning and it imitates other viral infections. This study is an endeavor to search for any new side effects and signs explicit for COVID 19. Additionally, it might toss a light to focus on the most well-known side effects across various age gatherings. Despite the fact that there have been a few pediatric case reports and case series, the study of disease transmission and clinical examples of COVID-19 in pediatric patients. The point of this study was clinical discoveries and result of pediatric patients with affirmed COVID-19 positivity.

Materials and Methods

This observational study was carried out at the Department of Pediatrics, 250 Bed General Hospital, Gopalganj, Bangladesh from October 2020 to March 2021. The inclusion criteria were Patients aged day 1 to 15 years, and all patients confirmed Covid-19 positive by reverse transcription polymerase chain reaction (RT-PCR). Finally, 56 patients were enrolled in this study. The medical data was analyzed from previously taken questionnaire for each patient. Demographic data, medical history, contact history was included in the questionnaire. Signs and symptoms including fever, cough, vomiting, diarrhea, abdominal pain, headache, body ache, fatigue, no symptoms, and hospital stay were recorded. Investigation reports were RT-PCR, leukocyte count, total neutrophil count, lymphocyte count, levels of CRP,

serum ferritin, CXR were analyzed. Collected data were analyzed using the SPSS (Statistical Package for Social Sciences) version 22.0 for Windows (SPSS Inc., Chicago, Illinois, USA). Qualitative variables were expressed as frequency, percentage and quantitative variables as mean ± standard deviation.

Results

Fifty six patients were included in the study over a period of six months. Mean age was 59.96 ± 43.24 months, 48.2% were male and 51.8% were female (Table 1). Among fifty RT-PCR positive cases, thirty seven (66%) were symptomatic and Nineteen (34%) were asymptomatic.

Demographic Profile	N	%
Age		
1 month to 1yr	5	8.9
1yr - 2yr	5	8.9
2yr - 5yr	17	30.3
5yr - 10yr	19	33.9
10 - 15 yr	8	14.2
Mean ± SD	33.86 ± 46.34	
Range (min-max)	(4 - 166)	
Gender		
Male	27	48.2
Female	29	51.7

Table 1: Distribution of the study patients by demographic profile (n = 56).

Patients got admitted with fever (44.6%), cough (25%), diarrhoea (12.5%), nausea and vomiting (10.7%), anosmia (25%), chest pain (3.5%) sore throat (7.1%) constipation and abdominal pain (3.5) headache (3.5) and runny nose (5.3) (Table 2).

COVID-19 symptoms	Number	Percentage
Fever	25	44.6
Cough	14	25.0
Difficulty in Breathing	5	8.9
Diarrhea	7	12.5
Nausea and Vomiting	6	10.7
Anosmia	14	25.0
Chest pain	2	3.5
Sore throat	4	7.1
Constipation and abdominal pain	2	3.5
Headache	2	3.5
Runny nose	3	5.3

Table 2: COVID-19 symptoms of the study children (n = 56).

Out of nineteen cases 33.9% were admitted for less than 10 days, 44.6% were admitted for 10-14 days and 21.4% were admitted for more than 14 days. Duration of hospital stay ranged from 1 to 21 days with a mean of 10.96 ± .18 days (Table 3).

	Number	Percentage
< 10 days	19	33.9
10 - 14 days	25	44.6
> 14 days	12	21.4
Mean ± SD	10.96 ± .18	

Table 3: Duration of hospital stay (n = 56).

Out of fifty six cases, fifteen (26.7%) children were associated with co-morbid conditions like congenital heart disease (10.7%) followed by bronchial asthma, hereditary hemolytic anaemia, adenoid and ROP (Table 4).

Association	Number	Percentage
CHD	6	40
Hereditary hemolytic anaemia	1	6.6
Bronchial asthma	5	33.3
Enlarged adenoid	2	13.3
ROP	1	6.6

Table 4: Distribution of comorbidities among studied children (n = 15).

Table 5 shows that 17.8% patient’s had leucopenia, 12.5% lymphopenia and raised CRP, patients had, 12.8% patient had neutrophilia. There was Serum Ferritin high in only 7.1% cases.

Blood report	Patient number	Percentage
Normal leucocyte count	31	55.3
Neutrophilia	7	12.5
Leucopenia	10	17.8
Lymphopenia	7	12.5
C- Reactive Protein increased	7	12.5
Serum Ferritin increased	4	7.1

Table 5: Percentage of clinical symptoms of COVID 19 in children (n = 56).

Table 6 showed that 30.3% patients had normal chest X-ray and mild lesion 57.1%, bilateral consolidation 8.9% and 3.5% patchy opacities. 8.9% patients needed O₂ support. One patient who came with pancreatitis had elevated serum amylase level. Average total hospital stay of patients was 8 - 10 days.

Chest X-Ray report	Patient number	Percentage
Normal chest X-Ray	17	30.3
Mild lesion	32	57.1
Bilateral Consolidation	5	8.9
Patchy opacity	2	3.5

Table 6: Chest X-ray findings of COVID 19 infected children (n = 56).

Of the fifty six cases eight (14%) cases had positive CRP (Table 7).

CRP	Number	Percentage
Positive	8	14.2
Negative	48	85.7

Table 7: Level of CRP among the COVID-19 children (n = 56).

Out of the fifty six cases three (5.3%) cases had high S. creatinine level with a mean of 0.47 ± 0.19 mg/dl and seven (12.5%) cases had high S. procalcitonin level with mean procalcitonin level was 0.0656 ± 0.4 ng/ml. Twenty (35.7%) cases had high D-Dimer level with a mean of 0.95 ± 1.09 µg/ml and forty (80%) cases had high S. LDH. Out of fifty six cases, only four (7.1%) cases had a high S. ferritin (Table 8). Chest X-ray was done in all cases and in all cases these were normal, therefore no HRCT chest was done. Out of all fifty patient 55 patients were improved and discharged. Only one child died in this cohort.

S. creatinine	Number	Percentage
High	3	5.3
Normal	53	94.6
S. Procalcitonin High	7	12.5
Normal (< .0.15 ng/mL)	49	87.5
D-Dimer High	20	35.7
Normal (0.4 - 2.27 µg/ml)	36	64.2
S. LDH High	44	78.5
Normal (225 - 480 U/L)	12	21.4
S. Ferritin High	4	7.1
Normal (Male: 28 - 397/Female: 6 - 159)	52	92.8

Table 8: Laboratory markers of COVID-19 studied children (n = 56).

Discussion

The results of this study showed that a critical extent of kids with COVID-19 had an asymptomatic course and may assume a significant part in the spread of the illness. Albeit this study has been shown that COVID-19 might cause spasms dissimilar to clinical discoveries

like fever, hack, respiratory misery, stomach torment, looseness of the bowels, and regurgitating. 56 patients were remembered for the review over a time of a half year. Mean age was 59.96 ± 43.24 months, 48.2% were male and 51.8% were female. Dong et al. observed middle age of 7 years which is practically pertinent to this study [13]. Among 56 RT-PCR positive cases, 37 (66%) were suggestive and Nineteen (34%) were asymptomatic found in this review. Notwithstanding, Carmen et al. in an audit, showed that 14.3% of cases were asymptomatic, and the excess 85.7% were indicative, which contrasts from this study [14]. Predominant symptoms COVID-19 of this study were fever (44.6%), cough (25%), diarrhoea (12.5%), nausea and vomiting (10.7%), anosmia (25%), chest pain (3.5%) sore throat (7.1%) constipation and Abdominal pain (3.5) headache (3.5) and runny nose (5.3). Carmen., *et al.* observed a similar presentation with the present study [14]. They showed that fever (59.3%) was the most typical symptom, followed by cough, rhinorrhea or pharyngeal congestion, diarrhea and sore throats were less common in their study. Out of fifty six cases, fifteen (26.7%) children were associated with co-morbid conditions. These were congenital heart disease, hereditary hemolytic anaemia, bronchial asthma, enlarged adenoid and ROP. Zachariah P., *et al.* showed, 61% of the children had comorbidities in their study [15]. Obesity was the most common (22%) and asthma, sickle cell disease, cardiac disease, and diabetes were the other comorbidities that partially matched with the current study. In children there is relatively less number of patient had lymphopenia and elevated inflammatory marker compared to adults showed in ClinChem Lab Med [16,17]. Summarized from 12 studies on 66 children that 69.6% had normal leukocytes, 6% neutropenia, 4.6% neutrophilia, 3% lymphopenia and elevated CRP 13.6% [19]. Regarding investigation from 58 cases of this study normal leukocyte count, leucopenia, lymphopenia, neutrophilia, raised CRP, increased serum ferritin showed in different percentage. We found 30.3% patients had normal Chest X-Ray and mild lesion 57.1%, bilateral consolidation 8.9% and 3.5% patchy opacities. Another study showed that among 134 cases, 36% of the patients had pneumonia, 6.7% were normal X-Ray and 64.9% were mild lesion [18]. In the current review, six cases eight (14%) patients had positive CRP, forty (85.7%) patients had high S. LDH and five (10%) patients had high S. procalcitonin level. Michael H., *et al.* displayed in serious illness, CRP, procalcitonin and LDH were much of the time raised [19]. In our review, 5.3% of youngsters had high S. ferritin. In this review, serious show of COVID-19 was not reported and biochemical markers were fundamentally raised, which was coordinated with the past review. 55 (98%) patients were improved and released, just a single patient (2%) passed on. Along these lines, the Covid sickness 2019 in kids appeared to have a milder infection course and preferable visualization over grown-ups. Moreover, passings were uncommon, which was like this Study [20]. Concentrate on limitations was small example size and incorporation standards were not seriousness based. Youngsters impacted with COVID 19 contamination were conceded because of dread of the dubious clinical profile and result.

Conclusion

In a significant proportion of children, COVID-19 infection has an asymptomatic course, which contributes greatly to the spread of the disease. Clinical profile of COVID 19 in children was mild and the outcome was good. Fever and cough were the predominant findings of COVID-19 affected children in this study. While COVID-19 causes morbidity such as convulsions in the paediatric population, the disease had a more severe course in children with an underlying serious disease and may even result in death.

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