

**Original article:**

## **Clinical profile of Paediatric COVID-19 cases in a tertiary care centre**

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### **Abstract:**

**Background:** In December 2019 an outbreak of novel coronavirus ,Severe acute respiratory syndrome coronavirus 2(SARS CoV-2) took place in Hubei province of wuhan in china.There is a rapid spread to all the countries.In September 2020 around 1 million death were reported globally.Covid 19 in children were reported in few countries like,China ,USA and Iran.There presentation was similar but severity differs.In children mostly there is a wide spectrum of clinical presentation from common cold to death.But mostly mild symptoms were noted.Very few get into severe MIS-C syndrome with elevated markers.T

**Aim of the study:** The objective of the study is to describe the Clinical profile and Haematological Parameters in Covid 19 positive paediatric cases.

**Methodology:** This study was done in Government ESIC Medical College and Hospital,Coimbatore,Tamil Nadu in Paediatric Department., from the period of May 2020 to April 2021.All the Covid positive children of age groups<12 years of both sexes were included.Patients having Non Covid Pneumonia were excluded.After getting ethical committee clearance data was collected using patient information sheetand laboratory investigations were done.The data was entered in MS excel and analysis was done using SPSS 23.p value <0.05 is considered significant.

**Results:** Total of 800 children were admitted during the study period.Among them male children were more 624(78%) .The most common presentation during the time of admission was Fever 56( 53%)followed by cough 20(19%) and respiratory distress 10(9%).Majority were asymptomatic 694 (86%) with history of contact of household 738 (92.2%).Most of the children admitted were in observation and supportive treatment .

**Conclusion:** Most children with COVID 19 presented with mild symptoms and majority were asymptomatic.The lymphocyte count,neutrophil count were all within normal range.Fever and cough were the common symptoms in our study population.Diarrhoea and vomiting were least common

**Keywords:** Covid-19,MIS-C,Lymphocyte,Hematology

### **Introduction:**

Coronavirus was detected in Wuhan city in the Hubei province on 31st December 2019.It was isolated from the epithelial cells present in the human airway<sup>1</sup>.This novel coronavirus in on 11<sup>th</sup> February 2020 named by

Taxonomy of Viruses as ‘Severe acute respiratory syndrome coronavirus(SARS)<sup>2,3</sup>.WHO China joint mission reported about 2.4% of 55924 laboratory confirmed cases in children < 18 years of age<sup>4</sup>.Centers for Disease Control (CDC) in USA also reported around 1.7% of children <18 years were contributing to total covid 19 cases<sup>5</sup>.

In India the ICMR laboratory surveillance reported 3.6% affected in the age group <9 years and 8.1% in age group 10-12 years<sup>6</sup>.The incidence is higher compared to other countries.Children present with wide spectrum of clinical finding starting from common cold to severe respiratory disease and death.Children mostly present with milder symptoms compared to the adults<sup>7-11</sup>.In other countries it is reported that some children were admitted with fever,cough,breathing difficulty and many cases of gastrointestinal symptoms.Children hospitalization rates and mortality are lower compared to adults<sup>12-14</sup>.

As children has a lesser positivity findings in imaging techniques and as there is negative effects of ionizing radiation in children it is advisable to restrict the indication of taking images<sup>15</sup>. It has also been advised to take the images based on the patients clinical profile and symptoms<sup>16</sup>.But there are children who develop MIS-C Multisystem inflammatory syndrome related to coronavirus where early imaging may help in evaluating the disease and for treatment<sup>17-18</sup>.

The clinical presentation,severity and outcome differs in each country,the data available in our region epidemiology,signs and symptoms and treatment may pave way to plan for the management of children during the pandemic .This study was conducted to give the clinical presentation of the children who came to the tertiary care centre for treatment.

**Objective:**

To describe the Clinical profile and Haematological Parameters in Covid 19 positive paediatric cases

**Methodology:**

**Study setting:**

Hospital based cross sectional study was conducted in the Department of Paediatrics,Government Medical College and Employees State insurance Corporation Medical College and Hospital Coimbatore,TamilNadu which is a tertiary care centre.The study was done for a period of 1 year from May 2020 to April 2021.

**Sample Size:**

All those paediatric cases who have given consent for the study and fulfilling the inclusion criteria will be taken.During this period around 840 paediatric cases got admitted where 40 were excluded according to our exclusion criteria.So our final sample size is 800.

**Inclusion criteria:**

All those patients who were tested positive for Real time Polymerase chain reaction through nasopharyngeal swab

**Exclusion Criteria:**

Non Covid Pneumonia

Patients in t

**Laboratory and imaging methods:**

Complete Blood Count,C reactive protein (CRP)and chest xray were taken for all the patients

**Exclusion Criteria:**

Patients who have not given consent were excluded.

**Data Collection:**

After obtaining the informed written consent, all the study subjects were evaluated by thorough clinical history, physical examination, and appropriate investigations. All the relevant parameters were documented in a structured study proforma.

The following parameters were documented in the study proforma.

1. Personal particulars like Name, Age, Gender, Present, and Past History were documented. General and systemic examination was done, vitals recorded, the outcome was documented.
2. Hematological and biochemical investigations, X-ray chest PA view were done

venous.

**Statistical analysis:**

After collecting the data, it was entered in MS excel Windows 10. Statistical analysis was done in SPSS 23. Continuous data were expressed in terms of Mean ± Standard deviation and compared by independent sample t test. Categorical variables were expressed in terms of numbers (percentages) and compared by the chi-square test.

**Results:**

**Table 1: Clinical profile of the study participants (N=800):**

Characteristics	Number (N)	Percentages(%)
<b>Age</b>		
Less than 1 year	72	9
1-5 years	195	24.4
6-10 years	320	40
<=12 years	213	26.6
<b>Sex</b>		
Male	624	78
Female	176	22
<b>Symptomatology</b>		
Asymptomatic	694	86.7
Symptomatic	106	13.3
<b>Symptoms</b>		
Fever	56	53
<b>Respiratory symptoms</b>		
Cough	20	19
Rapid breathing	10	9
Coryza	14	13
<b>GI Symptoms</b>		
Diarrhoea	3	3
Vomiting	3	3
<b>Type of Contact</b>		

<b>Household</b>	738	92.2
<b>Others</b>	62	7.8

In our study the mean age was 6±3.5 with the minimum age of new born and maximum age of 12 years. Male predominance is noted 624 (78%). Majority children came with history of contacts which constituted 738(92.2%) and presented as asymptomatic 694(86.7%). The most common presentation was Fever was 5(53%) followed by Cough 20(19%) and coryza 14(13%). The least presentation was Diarrhoea and Vomiting 3(3%).

**Table 2: Biochemical parameters in the study participants (N=800)**

<b>Investigations</b>	<b>Mean±Standard deviation</b>	<b>Confidence interval</b>
Hemoglobin g/dL	128.30±13.82	127.34-129.25
White blood cells x10 <sup>3</sup> /microL)	5.93 ± 1.62	5.81-6.04
Platelet count	268.60± 123.34	260.05-277.14
Neutrophils	53.2±2.7	53.013-53.38
Lymphocytes	39.17±2	39.03-39.30
C-reactive protein(CRP)	2.9±0.09	2.89-2.91

The Laboratory results of our study population states that there is no increase or decrease in Leucocyte, Neutrophil and Lymphocytes value. They were in normal range. C-reactive protein had been noted to mildly elevated in 1 patient which was due to other reason.

**Table 3: Treatment and outcome in the study participants(N=800)**

<b>Variables</b>	<b>N(%)</b>
Level of Care Isolation ward	800(100)
Treatment modality Observation and supportive treatment Antibiotic	640(80) 160(20)
Outcome Discharged In hospital	768(96) 32(4)

Among the study participants all the children's who were positive 800(100%) were admitted in the Isolation ward. Majority 640(80%) were in observation and supportive treatment followed by antibiotic 160(20%). Most of the cases were discharged after 7 days 768(96%).

**Discussion:**

Among our study participants male was predominant 624(78%) which is also noted in Dong Y et al<sup>19</sup> in his study done in china and in He F et al<sup>20</sup> and Guan W-J et al<sup>21</sup> were male were more than females. Males were more in the study may be due to higher expression of ACE-2 receptors in Asian population. In our study the predominant symptom is fever 56(53%) followed by Cough 20(19%). These findings are also noted in Dong Y et al<sup>19</sup>, Guan W-J et al<sup>20</sup> and in Guo Y-R et al<sup>22</sup>. Fever was reported more in >5 years of age. In a systematic review study which included 27 studies also stated that 41%-58% had fever followed by cough 39%-51%<sup>23</sup>.

In our study the patients reported of mild symptoms which is vice versa to the results of Iran where they reported 40% cases of pneumonia<sup>24</sup>. Critical cases were reported in less commonly in some studies<sup>25-28</sup>. Among our study participants majority had household contact 738(92.2%). This may be due to closure of schools and extended lockdown and no outdoor activities. This may be similar to Dash N et al study<sup>25</sup>. Laboratory findings like Neutrophil, lymphocyte ratio or Leucocyte counts were normal for majority of the children. C-Reactive protein was also found to be normal in most of the patients. So clinicians must judiciously decide whom to take blood test and not. As laboratory abnormalities clinch us to the diagnosis of later progression of severity known as MIS-C. This may increase once the pandemic progresses<sup>29</sup>. Regarding treatment in our study we know that majority were under observation with supportive care 640(80%) and only 160 were given antibiotics like Azithromycin. There is no proper data on standard care for children only symptomatic care<sup>30</sup>. Our study is a early presentation study based on the data available in our tertiary care setting with a short duration and small sample size, single centric and with notable limitations

**Conclusion:**

Most of the paediatric cases in the pandemic had a household contact and presented asymptomatic and with mild illness. No moderate or severe illness were observed in our study population. Major patients have a good outcome and speedy recovery. So it is advisable for all the adults with children, if eligible to vaccinate as soon as possible and to follow Covid appropriate behaviour (CAB) properly. Further studies have to be done multicentric to throw light on the progression of disease and standards in treatment.

**Limitation:**

It is a single centric study so generalizability can't be done with this study. The clinical characteristics, severity and outcome may vary with larger sample size and in multicentric study.

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No funding was received. None of the authors have disclosure relevant to this manuscript

**Conflict of Interest:**

None

**Authors contribution:**

All authors in this study contributed to the data collection of the patients

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