



STUDY OF SARI PATIENT IN PEDIATRICS WITH SPECIAL REFERENCE TO SARS-CoV-2 INFECTION

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ABSTRACT

INTRODUCTION: Recent outbreak of SARS-COV-2 had affected so many people all over world. In earlier phase of pandemic it was believed that children are less commonly affected by covid 19. There are so many patients who presents with acute severe respiratory illness in emergency in pediatric department. So this study was done to know how the SARS-COV2 affects children, its demographic and clinical characteristic who present with acute respiratory illness. **AIM:** To study the incidence and clinical presentation of SARS- COV- 2 infection who were admitted with SARI in pediatric. **METHOD:** Retrospective Observational study from 1st April 2020 to 31st May 2020. **RESULT:** 8 patients were positive for covid 19 among 32 SARI patients tested by RT-PCR. Most commonly affected age group was between 1 month to 24 months (62.5%). %. All patient who were positive for covid 19 had fever as compared to covid 19 negative (p value 0.0013). In covid 19 positive patient 62.5% and 50% of patients had cough and fast breathing respectively. Total 13 patients (40.62%) had lymphopenia, out of that 5 were covid 19 positive. 8(25%) patients having radiological changes, from those 3 were covid positive. Total 26 patients were discharged and 6 patients were expired due to severe respiratory illness, among them 3 were due to covid 19 infection. **CONCLUSION:** also vulnerable especially patients with SARI. Fever is the most common symptom. Lymphopenia and CXR abnormality found in few patients.

KEYWORDS : : SARI, SARS- COV-2, Pediatric

INTRODUCTION:

The ongoing SARS-CoV-2 pandemic has affected so many people worldwide mainly adult population. Pediatric patient are affected in lesser number with less morbidity as compared to adult population (1)(2). So despite the worldwide spread epidemiological and clinical pattern of COVID 19 remain largely unclear among the pediatric population. Till now in whole world (1 June 2020) there 6194533 corona positive patient, among which 376320 lost their life and 2921865 recovered (3). A recent CDC report (1 June 2020) showed that 57026 corona positive patient was of 0-17 year of age, out of 143931 corona positive patient (4).

There are so many pathogens that affect the respiratory system such as different type of virus like respiratory syncytial virus, influenza virus, adenovirus etc. and bacterial pathology staphylococcus, streptococcus, H. influenza, klebsiella pneumonia etc. As novel corona virus is newly detected, initially in china (2019DECEMBER) and then it has affected almost whole world, WHO has declared as a pandemic on 11 march for SARS-COV-2 infection. It affects mainly the respiratory system and coagulation system. As in paediatric the presentations are different then adult and they are believed to be affected in lesser number this study was done to find out the incidence of novel corona infection in pediatric population along with that to know it's demographic characteristic and clinical presentation.

AIMS AND OBJECTIVES:

1. To study the incidence of SARS -CoV-2 infection in pediatric age group (1 month-12 year) with SARI.
2. To study the demographic, clinical, pathological profile of suspected SARS-CoV-2 Pediatric patient presented with SAR

MATERIAL AND METHODS

This is retrospective observational study which included 32 patients who presented with SARI and admitted in pediatric isolation ward. Case record sheets were reviewed and analysed. Data regarding age, gender, residential address, clinical features on presentation, history of contact with confirmed cases, history of travel, any significant family history, clinical examination mainly respiratory system, BP, SPO2, and investigation of SARI for screening were noted down.

All suspected cases were isolated in isolation ward and nasopharyngeal and oropharyngeal swab was taken for RT-PCR. Along with that Complete blood count and Chest X-ray for screening was done. Proper droplet and contact precaution taken while any procedure or examination. SARI was defined as any ARI with history of fever or measured temperature more than or equal to 38 degrees centigrade and cough; onset within the last 10 days; and requiring hospitalisation. (5)

Sample for RT-PCR was transferred with proper precaution to designated laboratory for testing. Patient who came COVID 19 positive are transferred to designated COVID 19 facility.

STUDY PERIOD: 2 months (1 April 2020 to 31 May 2020)

STUDY CONDUCTED AT: Smt. SHARDABEN GENERAL HOSPITAL Saraspur, Ahmedabad.

INCLUSION CRITERIA: All patient from 1 month to 12 year of age who admitted with SARI (AS PER ICMR: ARI with history of fever or measured temperature more than or equal to 38 degrees centigrade and cough; onset within the last 10 days;

and requiring hospitalisation. Infants may present with absence of fever) (5)

EXCLUSION CRITERIA: Less than 1 month of age.

Patient are classified as having URTI, MILD PNEUMONIA, SEVERE PNEUMONIA, ARDS, SEPSIS, SEPTIC SHOCK (6)

OBSERVATION

Table 1: NUMBER OF PATIENTS WHO TURNED OUT TO POSITIVE FROM SUSPECTED SARI.

COVID 19 STATUS	Total
Positive Patient	8(25%)
Negative Patient	24(75%)
TOTAL	32(100%)

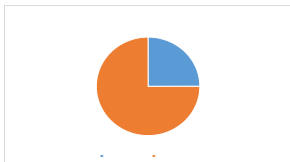


Fig. 1: NUMBER OF PATIENTS WHO TURNED OUT TO POSITIVE FROM SUSPECTED SARI.

We had taken total 32 patients who were presented with SARI out of them 8 (25%) were covid positive and 24 were negative which suggest that there are more number of patients who are infected with covid 19 infection who presented with SARI.

Table 2: SEX DISTRIBUTION

SEX	COVID POSITIVE	COVID NEGATIVE	TOTAL
MALE	6(75%)	11(45.83%)	17(53.12%)
FEMALE	2(25%)	13(54.16%)	15(46.87%)
TOTAL	8(100%)	24(100%)	32(100%)

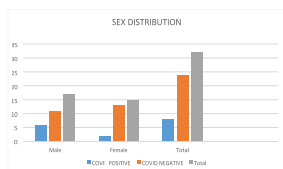


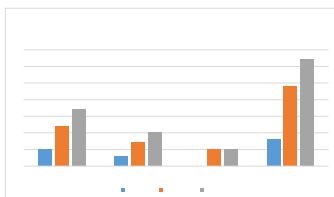
Fig. 2: Sex distribution

Out of total 32 patients of SARI 17 were male and 15 were female. From that 6 males and 2 females were positive for covid 19.

Table 3: AGE GROUP

AGE GROUP	COVID POSITIVE	COVID NEGATIVE	TOTAL
1MONTH-24MONTH	5(62.5%)	12(50%)	17(53.12%)
25MONTH-60MONTH	3(37.5%)	7(29.16%)	10(31.25%)
61MONTH-12YEAR	0	5(20.84%)	5(15.63%)
TOTAL	8(100%)	24(100%)	32(100%)

Fig. 3: Age distribution.



Age group mostly affected was less than 24 month of age both for SARI (53.12%) as well as covid 19 (62.5%) infection. As such young infants are more prone for different type of respiratory illness, covid 19 also affects this age group than older children.

Table 4: HISTORY, PRESENTING SYMPTOM, LYMPHOCYTE COUNT, CXR

FEATURES	COVID POSITIVE(N=8)	COVID NEGATIVE(N=24)	TOTAL(N=32)	P VALUE
FEVER	8(100%)	12(50%)	20(62.5%)	0.013
COUGH	5(62.5%)	8(33.33%)	13(40.62%)	0.21
FAST BREATHING	4(50%)	8(33.33%)	12(37.5%)	0.43
COLD	3(37.5%)	5(20.83%)	8(25%)	0.37
CONTAINMENT AREA	6(75%)	14(58.34%)	20(62.5%)	0.67
CONTACT HISTORY PRESENT	1(14%)	3(12.5%)	4(12.5%)	1
LYMPHOPE NIA PRESENT	5(71.42%)	8(33.33%)	13(40.62%)	0.21
CXR ABNORMAL	2(28.57%)	5(20.83%)	7(21.87%)	0.27

Table 5: SPECTRUM OF PATIENTS WITH SARI

SPECTRUM	COVID POSITIVE	COVID NEGATIVE
UNCOMPLICATED	0	12
MILD PNEUMONIA	3	6
SEVERE PNEUMONIA	2	4
SEPSIS & SEPTIC SHOCK	3	2

Table 6: OUTCOME

OUTCOME	COVID POSITIVE (n=8)	COVID NEGATIVE (n=24)	TOTAL(32)
DISCHARGE	5(62.5%)	21(87.5%)	26(81.25%)
EXPIRED	3(37.5%)	3(12.5%)	6(18.75%)
TOTAL	8	24	32

Out of 8 covid positive patients 5 were discharged and 3 patients expired, among them one was associated with co morbidity and two patients presented very late with respiratory failure and couldn't survived. Among the patients of SARI due to other causes 21 patients were discharged and 3 were expired. Thus during this pandemic also children are at high risk of having respiratory illness due to other organisms.

DISCUSSION

The SARS CoV-2 virus has affected so many countries all over world. In earlier phase of this pandemic it was believed that children are affected rarely may be due to less exposure (7). But some recent report suggests that pediatric populations also affected as likely as adults but lesser in numbers (1,2). In our study we found 25% of patients positive for covid 19 infection out of 32 patients who presented with SARI, 6 were male and 2 were female and 75% patients were having severe acute respiratory symptoms due to other causes like pneumonia due to other bacteria or viruses, bronchiolitis, WALRI, sepsis. Reason for these more number of patients may be most of population who were coming to hospital was coming from containment area where large number of adult population being infected by covid 19 infection.

From the 8 covid 19 positive patients, 75% were coming from containment area were large adult population affected. All patients had fever who were covid positive (100%), p value 0.013 as compared to covid 19 negative patients which is significant.

Cough was found in (62.2%) patients in covid 19 positive group and 33.33% in covid 19 negative patients, p value being 0.21, not significant. In another study fever and cough were the main symptom (8-18). A similar case series with 34 children had results like 65% had common respiratory symptom, the common symptom was fever (50%) and cough (38%) (19).

In pediatrics along with respiratory symptoms other symptoms are also reported like diarrhoea, vomiting, headache, refusal to feed also found. In our study only 4 patients of SARI had positive contact history from that one patient turned out to be covid positive and 3 were negative (p value 1) as compared to other study in which 83% patients had positive contact history. 7 covid positive patients had no history of contact in family or neighbourhood.

Lymphopenia was found in 13(40,62%) patients out of 32 patients, from that 5 patients were positive for covid 19 and 8 patients were covid 19 negative (p value 0.09). The results of another study found decrease or normal in total white blood cell count with reduced neutrophil and/or lymphocyte count (19). Radiological changes were found in 8 patients out of 32 patients, only 3 patients had abnormal xray who were covid 19 positive comparing with covid 19 negative patients, p value was 0.27 which is not significant which suggest that radiological changes may not be found in covid 19 positive patients.

Regarding outcome from 32 patients 8 patients were expired, 3 were covid 19 positive and 5 were covid 19 negative. 3 patients who were expired one had associated comorbidities, two patients were having respiratory failure and shock at presentation. All three patients were less than 24 month of age which shows infants and young children <2 years of age are more prone to be infected. From covid 19 negative group 3 patients were expired.

CONCLUSION

Our study suggests that despite of ongoing pandemic children are susceptible to respiratory illness due to common pathogen more as compared to covid 19. SARS-CoV-2 infects adult population mainly, children are also affected especially infants and young children. Fever is significant and present in all patients who were covid positive. Other symptoms in our study were cough and fast breathing were found in less number of patients. Lymphopenia and radiological abnormality may found in few number of patients.

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