

The manifestation of COVID 19 virus in children in Kirkuk city

Dr. Shan Nadhmi Nadhim, Specialist Pediatrician at Kirkuk pediatric hospital

Dr. Rana Muhammed Khorsheed, Specialist Pediatrician at Kirkuk pediatric hospital

Dr. Suzan Mahmood, Specialist Pediatrician at Kirkuk pediatric hospital

ABSTRACTS:

BACKGROUND:

The study is dealing with a pandemic and highly infectious disease which is COVID 19, that caused a pandemic in world and affected a huge number of children in Kirkuk city.

OBJECTIVES:

The objectives of this study are to assess the different presentations, signs & symptoms of COVID 19 in children in Kirkuk city in order to diagnose these cases as soon as possible and isolate them .

SUBJECTS AND METHODS:

This is a community-based descriptive cross-sectional study done in children presenting to Pediatric hospital in Kirkuk city and private clinics from the period of June 2020 until July 2021, 120 children infected with COVID 19 virus and diagnosed by PCR from nasal swap were collected using a questionnaire, containing details of his condition.

RUSULTS:

The study had showed that children may present with a variety of symptoms, like: fever, cough, nasal congestion, loss of smell and/or taste, dyspnea or GIT symptoms like: diarrhea, nausea, vomiting, abdominal, others with headache, dizziness, muscle aches and poor feeding.

CONCLUSIONS:

Children infected with COVID 19 might present with a wide variety of symptoms, like respiratory, GIT, CNS or non-specific symptoms, and it is important to send

them nasal swap for PCR for early diagnosis, isolation and start the proper treatment with them

KEY WORDS: Children, neonate, COVID 19, Kirkuk

INTRODUCTION:

Children can be infected with (COVID-19) virus, but it seems that its severity and extent is less than that is on the adult. As far as it is a viral infection, fever was the commonest complaint followed by cough and change in taste, in addition to the interesting gastrointestinal symptoms like: abdominal pain, vomiting and diarrhea. 1,2

COVID 19 cases started to increase in Kirkuk city at May 2020 and day by day cases become more and a pandemic has occurred in the city. It has affected a huge number at Kirkuk city, ranging from neonates to older age group with different manifestation. 3,4

Children can get infected by the COVID 19 virus like the adult, but diagnosis might be a real challenge as the signs and symptoms may be mild and non-specific but at the same time the infected children are highly infectious and can infect the whole family members especially those with underlying chronic medical diseases and can endanger their life. 5

Even babies less than 1 year can get infected with COVID 19 virus and complain from serious complications, especially those with underlying chronic diseases or immune compromised. And the presentation may be atypical. 6

Symptoms in older children really challenging from an age group to the others dramatically, and could be like a common cold symptoms, e.g: sore throat, fever, cough and body aches or even GIT symptoms, like abdominal pain, nausea vomiting and diarrhea. 7

So educating the families to bring their children immediately to hospital for PCR of nasal swap when there is any symptoms mentioned above and avoid giving any unnecessary treatment in order to diagnose them immediately and manage properly to minimize complications and the spread of infection to the others. 8

This study will help to show the commonest signs and symptoms for each age group, for early diagnosis of COVID 19 infected children and to formulate policies in order to deal with such cases and isolate them to control the pandemic and avoid giving unnecessary treatment and minimizing the complications of late diagnosis.

Subjects and Methods

This is a community-based descriptive cross-sectional study done in children presenting to Pediatric hospital in Kirkuk city and private clinics from the period of June 2020 until July 2021, 120 children infected with COVID 19 virus and diagnosed by PCR from nasal swab were collected using a questionnaire, containing details of his condition.

The questionnaire contains important questions about the details signs and symptoms, age of the children, duration of symptoms any exposure to swab positive COVID 19 cases, PCR result of the children whether being infected before or not, other baseline investigation results, like CBC, CRP, serum ferritin, CT chest findings, and the medication given for him before diagnosis.

Results:

Table (1) : Socio demographic characteristics of the study sample:

Socio- demographic parameter		Study sample	
		No	%
Sex	Female	35	28%
	Male	90	72%

This table shows the sample size distribution (125), female patients: 35, male patient: 90

Table 2: age distribution of the sample

Age	male	female	Total	Percentage
1 - 12 months	21	9	30	20%
1 year - 5 years	22	8	30	25%
5 years – 10 years	25	10	35	30%
>10 years	20	10	30	25%
Total	88	37	125	100%

The table shows age distribution of the sample according to gender, (1-12 months total 30 patients): 21 male, 9 female, (1 year-5 years total 30 patients): 22 male, 8 female, (5 years-10 years total 35 patients): 25 male, 10 female, (>10 years total 30 patients): 22 male, 10 female

Table 3: clinical manifestations of COVID 19 in children

Age	Fever	Cough	Diarrhea	Abdominal pain	vomiting	Skin rash	Gingivostomatitis
1 - 12 months	30	26	22	0	22	0	8
1 – 5 years	30	12	20	27	23	2	7
5 years-10 years	35	32	10	12	13	3	1
>10 years	30	27	8	11	12	4	2
Total	125	97	60	50	70	9	18
Percentage %	100	77	48	40	56	7	14

This table shows the clinical manifestation of COVID 19 according to different age groups, fever present in all the sample cases, cough present in 77% of cases especially in >10 years then 5-10 years and 1-12 months age groups but was less common in 1-5 years. Diarrhea was commonly seen in younger age group (1-12 months) and (1-5 years) and was less common in older age groups. Abdominal pain was mainly in (1-5 years) age group and less frequent in the others. Vomiting was seen mainly in (1-12 months) and (1-5 years) age groups and was less frequent in the others. Skin rash was noticed in small number of patients in the all age groups except <1 year. Gingivostomatitis was seen in all age groups and it was painful and annoying.

Table 4: investigation results findings in different age group

Age	Lymphopenia	CRP level elevation	Low WBC count	HIGH ESR	High ferritin level
1-12 months	22	23	20	18	23
1 year-5 year	25	27	22	20	26
5 years-10 years	33	34	28	30	34
>10 years	27	28	25	22	25
Total	106	112	95	90	108
Percentage %	85%	90%	76%	72%	86%

This table shows that high CRP, high serum ferritin & lymphopenia were the commonest findings in the investigation in the all age groups (90, 86 & 85%) respectively. Low WBC count also found commonly (76%), high ESR in (72%).

Table 5: CXR and CT-chest finding

age	Pneumonic patch	Mild CT changes	Moderate CT changes	Severe CT changes
1-12 months	11	2	7	2
1 year-5 year	16	6	7	3
5 years-10 years	18	8	8	2
>10 years	9	3	5	1
Total	54	19	27	8
Percentage %	43%	15%	22%	6%

This table shows that Pneumonic patch was the commonest CXR finding (43%) seen mostly in (1-5 years) and (5-10 years). Regarding the chest CT finding, it was 15% mild, 22% moderate and 6% severe.

Discussion:

Corona virus can affect children but their signs and symptoms tend to be less severe with different presentations according to the age group (from less than 12 months to > 10 years), this study is dealing with corona affected children in different age groups, assessing the signs and symptoms, laboratory investigation findings and CT chest findings and comparing these findings with other similar studies in different parts of the world. Regarding this study, male cases were more common than the female and this finding agrees with many studies, Farhaan S. et al, that found evidence from China and Europe has suggested that the incidence and mortality were more severe in male cases than the female. Another big study conducted on 2500 children at USA also found the liability of the male gender to COVID infection. WHO has estimated that 70% of cases were male. 9, 10

Age group distribution from 1 month up to >10 years all were equally liable for infection and the nutritional status of the children was not protective, although the symptoms were more severe in malnourished children, and this agrees with other studies done about the subject, Jonas F Ludvigsson et al, Hasan Tezer et al., Gulhan Karakaya Molla et al. 11

Millions of children had infected with COVID-19 virus worldwide, the commonest presentation of these cases were cough and fever, in addition to the different GIT symptoms, like abdominal pain, vomiting and diarrhea, this finding agrees with a study done by Xuefeng Ma et al. 12

One of the interesting findings was different types of skin rash, like: chilblain-like lesions, erythema multiforme, urticarial and Gingivostomatitis, these findings agree with a study done by D Andina et al. 13

Regarding the laboratory test findings, lymphopenia, high CRP and ESR, high ferritin and d-dimer levels were noticed in most of the patients, and the degree of the severity of signs and symptoms was directly related to these results, these results agrees with Xuefeng Ma et al, E Murillo-Zamora, and Stephanie Ward et al. 14,15

Regarding the chest CT scan findings, it was varying from mild, moderate and severe, the finding was more severe with advancing age causing viral pneumonia, and this agrees with Tao Ai et al. 16

In summary COVID-19 virus affects male gender more frequently than female, cough and fever were commonest presentations, but also there was GIT symptoms, like: vomiting, diarrhea and abdominal pain, skin rash and gingival stomatitis were seen in some cases, lymphopenia and elevated CRP were a common finding and CT-chest involvement was more common in older aged children although it was seen even in less than 12 months aged children.

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