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ORIGINAL ARTICLE

Frequency of Confirmed Corona Infection (COVID-19) in Children in Affected Families of Gujrat

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ABSTRACT

Aim: To detect the frequency of confirmed corona infection (covid-19) in children in affected families in Gujrat.
Study design; cross sectional study.
Place and duration of study: This study was conducted from January 2020 to 10 June 2020 at Gujrat Pakistan.
Methods: Total 214 children were included in the study from 141 families in which at least one family member was confirmed positive for corona virus infection (COVID-19). This study was started in the beginning of year 2020 but in Gujrat first positive case was reported in March 2020. First of all a family was decided where a confirmed positive case was there. This particular family was included and decided for testing if there was abroad travelling history within 14 days or there was a contact with a confirmed positive patient for corona infection (COVID-19).
Results: Total 214 children were included from January 2020 to June 2020. Out of total 214 children, 78 children were positive for (COVID-19) corona infection. Out of 78 (COVID-19) corona infection positive children, 46(58.97%) were female children whereas 32(41.02%) were male children. 37 children (47.44%) were from 1 to 6 years of age whereas 41 (52.56%) were 7-15 years of age.
Conclusions: Children can acquire corona virus infection (COVID-19) from adults. Though the severity of corona virus infection (COVID-19) is mild in children, in spite of all this the children should not come in contact with positive person for corona virus infection (COVID-19).
Keywords: COVID-19, affected family, contact with positive patients

INTRODUCTION

Viral infection is very common now a day. The diagnosis of different viral infections has always been very difficult. The clinical presentation of viral infection is always non-specific [1].

Corona virus disease is highly transmissible and dangerous viral infection which leads to respiratory problems [2]. Family of coronaviruses is Coronaviridae and its order is Nidovirales. Corona virus has a crown like spikes on it. Previously coronaviruses were considered to infect only animals until it developed severe acute respiratory syndrome (SARS) in china in 2002. Later on a Middle East respiratory syndrome (MERS-CoV) was caused by coronavirus[3].

Genome of the virus is little complex. In the viral membrane helical capsid is formed with the nucleocapsid protein. Viral membrane contains at least three viral proteins. Glycoprotein gives a crown like appearance to this virus [4].
Murine corona virus was isolated in 1949, so these species have been described for more than 50 years back. Corona viruses can infect many animal species including humans[5, 6].

Coronaviridae family was established by the International Committee on Taxonomy of the viruses in 1975. Later on Coronaviridae family was divided into two subfamilies, the coronaviruses and toroviruses[7].Coronaviruses cause acute and chronic respiratory, enteric and central nervous system diseases in humans as well as in many animal species. Before emergence of severe acute respiratory syndrome (SARS-CoV); both prototype human coronaviruses were etiological agents of common cold[8].

The objective of the study was to detect the frequency of confirmed corona infection in children in affected families in Gujrat.

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Previously corona virus was considered a virus causing mild disease. SARS-CoV was first recognized form of virus which was known to cause severe respiratory problem in humans[9]. After the identification of SARS-CoV, another type of coroa virus was also identified associated with severe pneumonia in elderly patients[10].

HCoV-NL63 is another type of corona virus which was detected from a 7 months old child admitted with bronchiolitis[11,12].

First treatment which was tried was steroid therapy. This treatment was proved as ineffective. This was especially tried for acute respiratory syndrome to stop exacerbated cytokine response[13,14].

In combination with steroids and ribavirin, antibacterial therapy was also given to prevent secondary infection. Moreover antiviral antibodies and many other treatments have been reported but unfortunately no international agreement about anti-SARS strategies were finalized[14,15].

Plasma taken from patient who has recovered from SARS has been tried and apparently gave beneficial result if given early in the course of disease[16].

MATERIALS AND METHODS

Total 214 children were included in the study from 141 families in which at least one family member was confirmed positive for corona virus infection (COVID-19). After approval from Ethical Committee this study was started in the beginning of year 2020 but in Gujrat first positive case was reported in March 2020. All selected children were less than 15 years of age. First of all a family was decided where a confirmed positive case was there. This particular family was included and decided for testing if there was abroad travelling history within 14 days or there was

a contact with a confirmed positive patient for corona infection (COVID-19). All children of that particular family were kept under observation and tested for corona virus infection. Nasal or pharyngeal sample was sent. All the signs and symptoms were noted. All the children who were having any of the risk factors were kept in quarantine for 14 days and if the test was detected positive then child was isolated for further management until negative test for corona virus infection. Isolation was done in a separate room. Child with positive test for corona infection was observed closely for any complication or any associated problem until the test for corona infection was reported negative. Descriptive statistics like mean or proportion was calculated for age, gender and clinical presentation of children.

RESULTS

Total 214 children were included from January 2020 to June 2020. Out of total 214 children, 78 children were positive for (COVID-19)corona infection. Out of 78 (COVID-19) corona infection positive children, 46(58.97%) were female children whereas 32(41.02%) were male children. 37 children (47.44%) were from 1 to 6 years of age whereas 41 (52.56%) were 7-15 years of age (Table I& II).

In 01-06 years of age group 36 children were infected by local spread by coming in direct contact with infected adult person and only one child was among the Zaireen who might have acquired the virus from some where else during religious ziarat. On other hand all the children in 7-15 years of age group were infected by local spread by coming in direct contact with infected adult person (Table III).

Many signs and symptoms were observed in children including fever, cough, flue, respiratory distress and decrease appetite. One child might show more than one signs and symptoms. Fever was observed in 27(34.61%) children, 13(35.13%) were 1-6 years of age and 14(34.14%) children were 7-15 years of age. Cough was observed in 07 (8.97%) children, 02(5.40%) were 1-6 years of age and 05(12.19%) children were 7-15 years of age. Flue was observed in 41 (52.56%) children, 18(48.64%) were 1-6 years of age and 23(56.09%) children were 7-15 years of age. Respiratory distress was observed in 1(1.28%) children, 0(00%) were 1-6 years of age and 01(2.70%) children were 7-15 years of age. Decrease appetite was observed in 04(5.12%) children, 03(8.10%) were 1-6 years of age and 01(2.43%) children were 7-15 years of age (Table IV).

Table 1: Age distribution (n=214)

Age	Positive cases	Percentage
1-6 Years	37	47.44%
7-15 Years	41	52.56%
Total	78	100%

Table II: Gender distribution (n=214)

Age of corona test (covid-19) positive cases	Male	Female
1-6(n=37)	17(45.94%)	20(54.05%)
7-15(n=41)	15(36.58%)	26(63.41%)
Total(n=78)	32(41.02%)	46(58.97%)

Table III: Source of infection (n=214)

	Covid-19 positive children 01-06 years of age (n=37)	Covid-19 positive children 07 -15 years of age (n=41)
Local (direct contact with patient)	36(97.29%)	41(100%)
Zaireen	01(2.70%)	00(00%)
Returned from abroad	00(00%)	00(00%)

Table IV: presentation (n=214)

Presentation	Covid-19 positive children 01 -06 years of age (n=37)	Covid-19 positive children 07 - 15 years of age (n=41)	Total (n=78)
Fever	13(35.13%)	14(34.14%)	27(34.61%)
Cough	02(5.40%)	05(12.19%)	07(8.97%)
Flue	18(48.64%)	23(56.09%)	41(52.56%)
Repiratory distress	01(2.70%)	00(00%)	01(1.28%)
Decrease appetite	03(8.10%)	01(2.43%)	04(5.12%)

DISCUSSION

In this study we tried to find the number of children affected by corona virus infection in the families where at least one family member was positive(confirmed) for corona virus infection.
Many family members of most of the families in Gujrat are in western countries for the purpose of earning. Gujrat is a city of Punjab province of Pakistan. Gujrat is situated on grand trunk road about 160 kilometer from Islamabad and 120 kilometer from Lahore. When corona pandemic attacked the world, meanwhile a large number of people returned to their home town Gujrat from different areas of the world due to uncertain condition in different areas of the world. That's why confirmed corona patients were high in Gujrat.

Mclntosh K in 1974 discussed that before emergence of severe acute respiratory syndrome (SARS-CoV); both prototype human coronaviruses were etiological agents of common cold [8].

In our study, all the children showed only flue like illness. Perhaps due to the best care and possible treatment respiratory complications were not observed.

Parry in 2003 reported that new cases with acute respiratory syndrome and atypical pneumonia emerged in 2003 in china[17]. Here again in late 2019 many new cases of corona virus (COVID-19) emerged from Wuhan China. Later on it infected whole world. Drosten along with colleagues and Fouchier with friends in 2003 discussed that a novel virus was isolated from lungs and sputa of the human and it was cultivated in kidney cell line in monkey. Moreover the presence of virus in lungs and sputa proved the reason of SARS was this novel virus[18,19, 20].

During our study, samples were taken from nose and pharynx of the patients and got positive results for COVID-19. So this may be the same type of virus which was causing respiratory problems in the current situation.
All countries of whole world were infected by Corona virus (COVID-19) within few months including Pakistan as well. In Gujrat its spread was very high among cities of Pakistan. Large number of the patients in Gujrat was asymptomatic and recovered in few days.

CONCLUSIONS

Children can acquire corona virus infection (COVID-19) from adults. Though the severity of corona virus infection (COVID-19) is mild in children, in spite of all this the children should not come in contact with positive person for corona virus infection (COVID-19). It is necessary to separate the children from adults who used to go out for necessary domestic work.

REFERENCES

1. Peeling WR, Olliaro P. Reimaging the future of the diagnosis of viral infection. The Journal of Infectious Diseases 2016; 214 (6): 828-9.

2. Shereen MA, Khan S, Kazmi A, Bashir N, Siddique R. Covid 19 infection: Origin, transmission and characteristics of human coronaviruses. Journal of Advanced Research 2020; 24: 91-8.
3. Zhong N, Zhong B, Li Y, Poon L, Xie Z, Chan K, et al. Epidemiology and cause of severe acute respiratory syndrome (SARS) in Guangdong, People,s Republic of China, in February . The Lancet 2003; 362 (9393): 1353-8.
4. Bond CW, Leibowitz JL, Robb JA. Pathogenic murine corona viruses. Characterization of virus specific proteins of murine corona virusesJHMV and A59V. Ann. Virology 1979; 94: 371-84.
5. Bailey OT, Pappenheimer AM, Sargent F, Cheever MD, Daniels JB. A murine virus (JHM) causing disseminated encephalomyelitis with extensive destruction of myelin. Pathology. J. Exp. Med. 1949; 90: 195-212.
6. Cheever MD, Daniels JB, Pappenheimer AM, Bailey OT. A murine virus (JHM) causing disseminated encephalomyelitis with extensive destruction of myelin. Isolation and biological properties of virus. J. Exp. Med. 1949; 90: 181-94.
7. Cowley JA, Dimmock CM, Spann KM, Walker PJ. Gill-associated virus of Penaeus monodon prawns: an invertebrate virus with ORF1a and ORF1b genes related arteri and coronaviruses. J Gen Virol 2000; 81: 1473-84.
8. Mclntosh K. Corona viruses: A comparative review. Curr. Top. Microbiol Immunol 1974; 63: 85-129.
9. Rota PA, Oberte MS, Monroe SS, Nix WA, Campagnoli R, Icenogle, et al. Characterization of a novel corona virus associated with severe acute respiratory syndrome. Science 2003; 300: 1394-9.
10. Woo PC, Lau SK, Chu CM, Chan KH, Tsoi HW, Huang Y, et al. Characterization and complete genome sequence of a novel coronavirus, coronavirus HKU1, from patients with pneumonia. J Virol 2005; 79: 884-95.
11. Fouchier RA, Hartwig NG, Bestebroer TM, Niemeyer B, de Jong JC, Simon JH, et al. A previously undescribed coronavirus associated with respiratory disease in humans. Proc. Natl. Acad. Sci. USA 2004; 101: 6212-6.
12. Van der Hoek L, Pyrc K, Jebbink MF, Vermeulen-Oost W, Berlhout RJ, Wolthers KC, et al. Identification of a new human coronavirus. Nat. Med 2004; 10: 368-73.
13. Lai KN, Leung JC, Metz CN, Lai FM, Bucala R, Lan HY. Role of macrophage migration inhibitory factor in acute respiratory distress syndrome. J Pathol 2003; 199: 496-508.
14. Koren G, King S, Knowles S, Phillips E . Ribavirin in the treatment of SARS: A new trick for an old drug. Can.Med.Assoc.J 2003; 168: 1289-92.
15. Bosh BJ, Martina BE, Van Der Zee R, Lepault J, Haijema BJ, Versluis C, et al. Severe acute respiratory syndrome coronavirus (SARS-CoV) infection inhibition using spike protein heptad repeat-derived peptides. Proc.Natl.Acad.Sci.USA 2004; 101: 8455-60.
16. Cheng YR, Wong R, Soo YO, Wong WS, Lee CK, Ng MH, et al. Use of convalescent plasma therapy in SARS patients in Hong Kong. J.Clin.Microbiol.Infect.Dis 2005; 24 (12): 44-6.
17. Parry J. WHO investigates China's fall in SARS cases. Br.Med.J 2003; 326: 1285-59.
18. Drosten CS, Gunther S, Preiser W, Van der Werf S, Brodt HR, Becker S, et al. Identification of a novel coronavirus in patients with severe acute respiratory syndrome. N.Eng.J.Med 2003; 348: 1967-76.
19. Drosten CS, Preiser W, Gunther S, Schmitz H, Doerr HW. Severe acute respiratory syndrome: identification of the etiological agent. Trends Mol.Med 2003; 9: 325-7.
20. Fouchier RA, Kuiken T, Schutten M, Van Amerongen G, Van Doornum GJ, Van Den Hoogen BG, et al . Aetiology: Kochs postulates fulfilled for SARS virus. Nature 2003; 423: 240.