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FREQUENCY OF COVID-19 IN POPULATION OF DISTRICT NOWSHERA

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Abstract:

Corona Virus disease termed as COVID-19, is an emerging highly contagious respiratory disease that is caused by novel corona virus 2019nCoV. To understand the basic mechanism of rapid transmission of this menace we have to develop the database to know the ratio of positivity of the disease among the asymptomatic, symptomatic patients and in patients with history of travel to an infected area or contact with positive COVID-19 patients. Based on the above concept valuing the clinical presentation, proper history taking to reach an a clinical diagnosis of the disease among the strong suspects, we did a clinical intervention to determine the ration of viral infectivity in our population. We observed that 114 (18.1%) case out of 629 suspects attended the COVID-19 clinic or followed after the positive cases including their close contacts or family members of the COVID-19 Positive. When the same ratio was determined in strong suspects where only the patients who were tested through nasophayngeal swabs for 2019-nCoV PCR, we observed that 114(29.6%) out of 385 were confirmed positive. Hence we concluded that a higher proportion of the suspects and patients with close contacts with infected patients are positive irrespective of the clinical presentation.

Keywords: COVID-19, Age factor, history of positive contacts, rate of infection

Introduction

COVID-19 is pandemic respiratory infectious disease with unknown etiology, was first reported to the WHO office on 31st Dec 2019, from Wuhan, a metropolitan city in the province of Hubei China1. Case fatality rate of 2.3% has been reported from china that is lower than SARS(9.5%) , MERS (34.4%) and H7N9 (39%)[2].

In Pakistan the virus entered on 26th February, 2020, when Government of Pakistan officially declared a student of university of Karachi diagnosed as COVID-19 positive, with a travel history of Iran[3]. In Pakistan the literature so for covering the prevalence and incidence is deficient and we found no published data, In Pakistan the so for reported data from government sources declares 30941 confirmed cases with 667 deaths. Punjab is the province with highest number of corona cases crossing 11568 cases followed by Sindh (11480), KP (4669) and Balochistan with2017 conformed cases.[4] In order to help the clinicians and to understand the burden of the disease, we analyzed the cases of District Nowshera where so for 385 cases PCR results.

Present pilot study was designed as to determine the ratio of positivity of the cases in the asymptomatic patients attending the COVID-19 clinic of a tertiary care hospital and in cases with strong history of contact/travel to an epidemic or patients in district Nowhsera.

MATERIAL AND METHODS

This cross sectional study was conducted from 10th Feb 2020 to May 8th , 2020 in district Nowshera and its only Medical Teaching Institution, Qazi Hussain Ahmed Medical Complex MTI Nowshera . A total of 385 patients whose PCR report was received were included in this pilot study.

Ethical approval was obtained from the institutional ethical review board of Nowshera Medical College hospital administration before

the execution of the study.

Prior informed consent was obtained from all suspects and they were assured of confidentiality.

All samples were sent under strict observance of protocols to the Public health research laboratory of Khyber medical university Peshawar (a designated Lab for PCR of 2019nCoV by the Government of Khyber Pukhtunkhwa).

Data was entered in SPSS 25th version and descriptive and correlation statistics were applied. The frequency and proportion of numerical and categorical and were presented in percentages. Descriptive statistics was used for age to determine the mean with standard deviation. Chi-square test was applied to show a relationship of viral infectivity in age.

RESULTS AND DISCUSSION

The mean with SD of age was 36years ±16 years, the minimu age of the suspects was 2 years with a maximum 0f 85 years and range of 83 years.

We enrolled a total of 629 patients in district Nowshera in COVID-19 data system. Out of total, 337(53.6%) were enrolled from the COVID-9 clinic of Qazi Hussain Ahmed Medical Complex and 292(46.4%) were selected from the from the district surveillance system.

Out of the total suspects 114/629 (18.1%) were COVID-19 Positive (Table 1/a).

Tian S et al[5] reported from the Beijing China that the prevalence of COVID-19 among the asymptomatic individuals in the early days of epidemic was 5%. While A study from Japan reported a higher proportion in asymptomatic of 17.9% (95% confidence interval (CI: 15.5–20.2%). They further stated that infection in majority of patient have occurred before they join quarantine[6]. Luo L et al[7] reported that the frequency of COVID-19 in his study at 10% that coincides our findings. In many countries they keep in mind certain risk factors in the form of age, gender, travel history, higher markers level like d-dimers and serum ferritin etc are the clues that helps clinicians to identify patients for further trial, before advising the patient PCR under limited resources.

Table 1: Frequency of positive cases:

a. **Positive cases in suspects, attending the COVID-19 Clinic(n=629)**

Negative	229	36.4	36.4	36.4
Positive	114	18.1	18.1	54.5
Awaited	39	6.2	6.2	60.7
not done	244	38.8	38.8	99.5
Inconclusive	3	0.5	0.5	100
Total	629	100	100	

b. **Frequency of positive cases in the strong suspects whose PCR was done=(n=385)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Negative	229	59.5	59.5	59.5
Positive	114	29.6	29.6	89.1
Awaited	39	10.1	10.1	99.2
Inconclusive	3	0.8	0.8	100.0
Total	385	100.0	100	

We further observed that out of 385 cases, PCR was advised, among those strong suspects who were shortlisted for testing on the basis of a scoring system due to limited viral transport media (VTM), The ratio of positivity was 114/385(29.6%) (Table 1/b). Anzari A et al8 also reported a higher frequency of 30% who studied patients with history of travel to an epidemic areas and patients with history of positive contacts.

We applied Chi-square test and a statistically significant difference was noted among the age groups (p=0.006) for positive cases (Table 2).

Table 2. Relation of viral infectivity with age

		age categories		Total
<60 years		>60 years		
PCRCAT	Positive	91	23	114
	Negative	201	28	229
Total		292	51	343

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.439[a]	1	0.006
N of Valid Cases	343		

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Another study from China reported 80% of the causalities (deaths) due to COVID-19 were in the adults aged>60 years as compared to 0.1% in person aged <19 years[9]. Similarly Italy is the second mostly affected country in the world, with more thah40000 cases of SARS-CoV infection. They reported a higher mortality in aged people as compared to younger population that identifies an immunity gap[10].

That is the point where the message to "**stay at home**" comes true, as whenever an individual has more history of travel he exposes himself to infectivity with 2019-nCoV, by coming across with contacts of COVID-19 patients. Therefore the best only option to contain the virus is to reduce mobility, to reduce contacts and to appraise the message of social distancing.

There were some un-avoidable limitations in the study like limited resources, limited VTM/UTM, short duration of study and low number of positive cases, though we had an acceptable population of suspects.

We concluded that infection with 2019-nCoV is more in aged population as compared to younger population that identifies its opportunistic nature and love for immunity gap. Similarly it has a strong correlation with travel history to an infected area and positive contact history.

There is need for integrated approach through advocacy and social mobilization for social distancing. Therefore it is further suggested that special care should be given to suspects with higher risks like in age<5years & age >60 years, patient with close contact, suspects with history of travel to an epidemic area and patients with weak immune status.

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