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Short Communication

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Exploring the Secrets of the Corona Virus: Symptoms Selection and its role in viral Infectivity with 2019-ncov.

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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. The symptoms selection has an important role in deciding the patient for viral testing and taking precautionary measures like deciding for isolation. The symptoms and clinical presentations vary in different population. If suspects are properly selected under a predefined criteria, the chances of positivity increases and help the clinician to identify the strong suspects. Based on the above concept valuing the clinical presentation and its role in correct diagnosis we did a clinical intervention to re-define the symptoms on the basis of their reliability index for its correlation with viral infectivity in our population. We observed that the combination of fever, cough and shortness of breath is suspects followed with PCR, the reliability index was 72% for results positivity. We further observed that flue alone, and sore throats are less reliable symptoms in our population in term of their correlation with positivity of test. Our findings were incorporated by the competent authority in the criteria for selection of suspects for PCR testing of 2019-nCoV.

Keywords: *COVID-19; Symptoms selection; PCR testing*

Introduction

COVID-19 (Corona virus disease) was first reported from metropolitan city, Wuhan, Hubei province of China in Dec 2019 that causes severe respiratory disease/pneumonia. The etiology of COVID-19 is yet to be confirmed, but majority of the scientists agree that it most likely originated from the zoonotic corona virus, SARS-CoV that emerged in 2002. COVID-19 was first reported to the WHO office on 31st Dec 2019 [1].

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 [2]. 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 11940 confirmed cases with 253 deaths Punjab is the province with highest number of corona cases crossing 5000. [3]

There is limited known about the clinical features, presentation and even the incubation period of this deadly virus, which has an impact on the control and surveillance of an infectious disease. The incubation period of the 2019-nCoV is reported from 6 days to 12 days [4]. The risky populations are close contacts of COVID-19 infected patients, healthcare workers, family members of infected patients.

Little is known about the management plan. In china they reported majority of their patients 90% with fever, cough (76%) and fatigue (32%). Chest X-ray and Computed Tomography (CT) showed bilateral patchy shadows in these patients. They were treated with antiviral and on the same pattern along with traditional treatment for this viral pneumonia [5]

To facilitate the healthcare workers working in COVID-19 clinics, management and administration of district Nowshera, of KP state of Pakistan to handle suspects, we thought of to give facts and figures on the impact of clinical presentation and its correlation with 2019-nCoV infectivity, and hence the study was designed.

Methodology

This comparative cross sectional study was conducted from 5th Feb 2020 to May 6, 2020 in district Nowshera and its only Medical Teaching Institution, Qazi Hussain Ahmed Medical Complex MTI Nowshera. A total of 243 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 variables were presented in percentages. ANOVA one way test was applied to show a relationship of viral infectivity in gender, history of travel, history of contacts with COVID-19 patients and symptoms stratification for COVID-19.

Results and Discussion

The symptomatology and clinical features has a significant relation with result positivity. Similarly cough, fever with shortness of breath with RI 18/25(72%) for positive cases followed by fever and cough with reliability index of 12/31(38.71%) cases, Fever and sore throat 7/26(26.92%). Many cases presented with symptoms of fever and sore throat turn out to be negative with reliability index of 7/26(26.92%), hence sore throat is comparatively less reliable symptom in COVID-19 in our population. Similarly three cases of flue alone with RI 0/3(0%) turned into a negative result, that disprove it to be a valid symptom in our population. 37/149(24.83%) cases had no symptoms at time of presentation which is also very alarming. The symptom selection has a significant relation with positivity of the result for COVID-19 using ANOVA test (p=0.001). (Table 1)

SYMPTOMS STRATIFICATION AND ITS RELIABILITY INDEX FOR OUR PUPULATION

		PCR_Result		Reliability index for symptoms in positive cases	Total
		Negative	Positive		
Symptoms	Flue	3	0	0	3
	Fever + cough	19	12	38.71	31
	Fever + sore throat	19	7	26.92	26
	Fever + cough + flue + sneez	4	2	33.33	6
	Cough with blood stinged sputum	1	2	66.66	2
	Cough +SOB + flue	7	18	72.00	25
	No Symptoms	112	37	24.83	149
Total	165	78		243	
ANOVA					
PCR_Result					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.057	6	0.843	4.152	p = 0.001
Within Groups	47.906	236	0.203		
Total	52.963	242			

Similarly Zhao D et al [6] also reported fever and cough in (78%) of confirmed COVID-19 cases that strongly coincides our findings.

The rate of infectivity depends widely on the incubation period that is reported between 2-14 days in the literature and also on the duration of exposure and also on the immune status of the patient to acquire infection [7].

The message is to "STAY AT HOME", Contact history especially to an infected COVID-19 positive person increase the chances of getting infection with 2019-nCoV.

It is concluded that cough, fever with shortness of breath are reliable symptoms for COVID-19 in our population. Therefore it is suggested that special care should be given to suspects with symptoms of fever, cough and shortness of breath and at an extreme of age.

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