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Research Article

Zahraei Method for Separating Suspected Patients with Less Possibility of Positive Covid-19 Test and Those with High Possibility of Positive Covid-19 Test Result in Lower Mortality Rate

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Abstract

The COVID-19 pandemic is a critical threat to global health. Patients who have COVID-19 may be asymptomatic or present with symptoms like fever, cough, or shortness of breath. As we know due to lack of equipment's in many healthcare centers worldwide patients with diagnosis of suspected Covid-19 admit in fast covid ward where confirmed covid-19 cases are admitted there too. We performed a suitable table form that by separating suspected patients with less possibility of positive test and those with high possibility of positive test and applying preventive protocols the chance of transmission the disease from confirmed cases to suspected cases will decrease and the result will be lower mortality rate.

Keywords: Covid-19; Protocols; Lower Mortality Rate; Pandemic; WHO; Asymptomatic; Chest CT; Coronavirus; Diagnosis; Symptoms; Pneumonia; PCR Test

Introduction

The COVID-19 pandemic is a critical threat to global health [1]. This affects medical systems in many aspects, specially increasing the need for hospital beds. The best diagnosis test for COVID-19, is RT-PCR [2-3]. WHO Director General, Tedros Adhanom Ghebreyesus, said about 3.4% of Covid-19 cases died. Matt Hancock Health Secretary of UK governments said that the fatality rate was "2% [4]. There is an evidence that men are becoming seriously ill or dying by coronavirus than women [5]. Patients who have COVID-19 may be asymptomatic or present with symptoms like fever, cough, or shortness of breath [6] Chest CT, with capability of early detection of pneumonia has become useful in the early diagnosis of COVID-19 [7]. Recent papers mentioned that the CT features of COVID-19 has close relationship with duration of infection and can be divided into four stages: early stage, progressive stage, peak stage, and absorption stage [8,9].

Cases with confirmed infection according to the diagnostic criteria, irrespective of the clinical manifestation (diagnostic tests: COVID-19 real-time RT-PCR, virus isolation) are called confirm cases. Cases with fever (37.5°C or higher) and/or respiratory symptoms (cough, sore throat, etc.) within 14 days of being in close contact with a confirmed case are called suspected cases [10]. As we know due to lack of equipment's in many healthcare centers worldwide patients with diagnosis of suspected Covid-19 admit in fast covid ward where confirmed covid-19 cases are admitted there too. so, when the negative PCR test for suspected covid-19 confirmed they will return to their previous ward and because of

inappropriate protection a big disaster will start. In this research we realized that designing a new method with the aim of reducing the risk of conduction of covid-19 from confirmed cases to suspected cases can be useful and the result will be reducing the mortality of the diseases monthly.

Materials and Methods

We performed a suitable table form for solving the problem that suspected covid cases may affect by confirmed covid cases when the PCR test is not ready in fast covid ward. This form includes the symptoms and histories from the patient which every single question or mark in the form has a score. This data gathered from novel covid-19 papers which focused on symptom percentage in suspected and confirmed covid cases. So, by this method and defining new score for suspected and confirmed covid cases we can predict which case has fewer chance for confirmed positive covid test. Besides the form another part of this method is that we should divide the fast covid ward into two parts: first part for admitting the patients with score near confirmed covid cases and second part for admitting patients with higher chance of negative PCR test. In the second part all protocols must apply including wearing suitable masks for patients with poor consciousness and proper air condition. Overall, by separating suspected patients with less possibility of positive test and those with high possibility of positive test and applying preventive protocols the chance of transmission the disease from confirmed cases to suspected cases will decrease and the result will be lower mortality rate. It also helps healthcare providers for categorizing the patients into proper ward for admission and know the prognosis level of each one.

Result and Discussion

According to table 1 we gathered percentage of each symptoms in Covid-19 cases of some novel articles that focus on corona virus issue and we had: In the research of [11] and colleagues the covid-19 cases had symptoms including fever 66.1%, cough 57.9%, body pain 42.7%, fatigue 42.1%, headache 37.4%, Shortness of breath 36.3%, anosmia 28.7%, diarrhea 7.4%, loss of appetite 11.3% sore throat 20.2% and ageusia 28.1%. In the research of [12] and colleagues the covid-19 cases had symptoms including body pain 31.4%, vertigo17.9%, headache 19.3%, nausea 21.4% and Shortness of breath 30.7%. In the research of [13] and colleagues the covid-19 cases had symptoms including fever 53.8%, cough 67.4%, body pain 42.7%, anosmia 28%, diarrhea 18%, sore throat 20.8%% and ageusia 25.6%. In the research of [14] and colleagues the covid-19 cases had symptoms including fever 52.2%, cough 61%, palpitation 28.3%, body pain 58%, vertigo 70.1%, headache 59.3%, Shortness of breath 36.3%, Nausea 34.1%, Shortness of breath 33%, anosmia 48.1%, diarrhea 41.8%, sore throat 32.5% and ageusia 49.6%. In the research of [15] and colleagues the covid-19 cases had symptoms including fever 34.4%, cough 56.73%, fatigue 29.8%, Hoarseness31.7%, diarrhea 25.95% and Shortness of breath 15.27% (Table 1). Overall, we had the mean percentage of fever 44.87%, Fatigue 43.3%, Shortness of breath 28.07%, headache 38.66%, cough 59.77%, palpitation 29.85%, body pain 41.93%, vertigo 17.9%, Hoarseness 31.7%, Nausea 21.05%, anosmia: 33.63%, ageusia 34.43 %, Diarrhea 23.28%, Loss of appetite 11.3% and sore throat 24.5 % in this research.

Table 1: Symptom percentage of Covid-19 cases in articles.

Abeed Sarker (11)	Tang Yifan (12)	Tomas Struyf (13)	Mark Tenforde (14)	Cristina Menni (15)	Authors Symptoms
66.10%	-	53.80%	52.20%	34.34%	fever
57.90%	-	67.40%	61%	56.73%	Cough
-	31.40%	-	28.30%	-	palpitation
42.70%	-	-	58%	-	Body pain
	17.90%	-	70.10%	-	Vertigo
42.10%	-	-	-	29.80%	Fatigue
37.40%	19.30%	-	59.30%	-	Headache
-	-	-	-	31.70%	Hoarseness
-	21.40%	-	34.10%	-	Nausea
36.30%	30.70%	-	33%	15.27%	Shortness of breath
28.70%	-	28%	48.10%	-	anosmia
28.10%	-	24.80%	49.60%	-	ageusia
7.40%	-	18%	41.80%	25.95%	Diarrhea
11.30%	-	-	-	-	Loss of appetite
20.20%	-	20.80%	32.50%	-	Sore throat

Conclusion

By adding all these information together we designed a schedule that contains above symptoms (mentioned in table 1) which the symptoms with mean percentage above 40% (cough, fever, body pain and fatigue) get 2 points and the symptoms under 40% (palpitation, vertigo, headache, hoarseness, nausea , short of breath, anosmia, ageusia, Diarrhea, Loss of appetite and Sore throat) get 1 point and we considered the total score for this schedule from 15 points that a score equal or above 8 considers as confirmed covid-19 and score under 8 considers as suspected covid-19 case so we should separate the suspected covid-19 cases in fast covid wards and apply adequate protections in order not to get infected if they have negative PCR test in future.

Conflicts of interest

The authors had no conflicts of interest.

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