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Systematic Review with no Meta-analysis of Coronavirus COVID-19

Bassel Tarakji^{1*}, Faisal Mehsen Alali¹, Adel Alenzi¹, Mohammad Zakaria Nassani²

¹Department of Maxillofacial Surgery and Diagnostic Sciences, Prince Sattam Bin Abdulaziz University, College of Dentistry, Al Kharj, Saudi Arabia; ²Department of Prosthetic Dental Sciences, AlFarabi College of Dentistry and Nursing, Riyadh, Saudi Arabia

Abstract

AIMS: COVID-19 is a new virus which has spread to most countries in the world. Many papers have been published on the clinical manifestations of this virus. This paper concentrates only on the clinical cases and prognosis of COVID-19 presented in the literature.

METHODS: Systematic review is done, and taken into consideration, all published papers in the literature related to COVID-19. Inclusion and exclusion criteria have been applied.

RESULTS: Few papers have been determined after many filtrations of all published papers concerning inclusion and exclusion criteria to assess outcome of existing COVID-19. Most published papers or reports did not provide full details for each case.

CONCLUSION: Most clinical description data in these reports are so limited and missing some of the critical elements such as the date of infection, source of infection, symptoms, diagnostic criteria, incubation of infection, transmission of infection, number of identified cases after contact with infected patients, and health workers are affected or not by treatment of infected patients, patient age, and type of study. No clear evidence of the treatment plan and the prevention and most data in literature depending on personal experience only which is different from country to others.

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Keywords: COVID-19; Coronavirus; Clinical manifestations; Prognosis

***Correspondence:** Dr. Bassel Tarakji, Department of Maxillofacial Surgery and Diagnostic Sciences, Prince Sattam Bin Abdulaziz University, College of Dentistry, Al Kharj, Saudi Arabia. E-mail: b.tarakji@psau.edu.sa

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Introduction

SARS-CoV-2 was identified as the causative factor of outbreak of respiratory disease, now named COVID-19 [1].

The virus did not cause illness in humans before [2]. This virus caused pneumonia of unknown etiology in Wuhan, China [3], [4], 27 out of 41 confirmed cases had direct exposure to the Wuhan seafood market where is believed the animal source of infection [5]. The transmission of COVID-19 from person to person has been confirmed [6]. The infected patients have identified in China, then the infection is spreading to many countries in the world [7]. The number of infected patients is increased daily. There is limited number of publication in literature due to the discovery of this COVID-19 as new virus. The aim of this study is to do systematic review of the available published data of COVID-19, also to highlight the most important clinical data only concerning on COVID to assess the prognosis of this new virus.

Materials and Methods

A literature search using MEDLINE, accessed through the National Library of Medicine, PubMed, EMBASE, and Cochrane systematic review interface, from 2019 to 2020 for articles relating to COVID-19 written in the English language. Various terms were used for the search: Coronavirus; COVID-19.

Inclusion criteria

All published articles or clinical report concerning COVID-19. Only clinical data written in English language will be included such as type of study, place of existing infection, gender, diagnostic criteria to detect COVID-19, number of confirmed cases, symptoms, and management.

Exclusion criteria

Articles includes non-clinical data such as pathogenesis, route of transmission, and other types of

Table 1: Clinical data of case series in selected papers of some patients infected with COVID-19

Author	Type of study	Country	N of cases	Patient gender	Patient age	Confirmed cases	Clinical features	Outcome
Bordi et al (February 2020)	Case report	Italy	126 patients		Mean age 35 (range 1-85 years)	3 out of 126	Not mention	Not mention
Chen et al (February 2020)	Case report	Jinyintan Hospital, Wuhan, China	99 patients		Mean age 55.5 (range 21-82)	99 confirmed cases	Fever in 83, cough, 81 have cough, 31 shortness of breath, 11 muscle ache, 9 confusion, 8 headache, 5 sore throat, 4 rhinorrhoea, 2 chest pain, 2 Diarrhoea, 1 nausea and vomiting	31 discharge, 11 died, all other patients were still in hospital
Stoecklin et al (January 2020)	Case report	France	3 cases		48, 31, 30	3 cases confirmed	First patient complains of fever, headaches and cough, second patient develops of fever, chills, fatigue, conjunctivitis and cough, third patient develops fever, chills, fatigue and cough	Not reported
Patel et al (2020)	Case report	United States	11 cases		Range age 20-60	11 confirmed cases	fever, cough, or sore throat	No death reported
National Emergency Response Center, Epidemiology and Case Management Team (2020)	Case report	South Korea	28 cases		Range 20-79	28 confirmed cases	Fever, sore throat, cough, chills, muscle ache	Not reported
Spiteri et al (2020)	Case report	Europe	38 cases		2-81	38 confirmed cases	Fever, cough, weakness, headaches, sore throat, Rhinorrhoea, Shortness of breath	One patient died

coronavirus will be excluded. Duplicated clinical data will be excluded as well.

Results

A total of 984 papers have been identified. We have reviewed the full text of those papers, after many filtration of those papers after reading abstract and full papers, 6 out of 984 were identified and included to be consistent with the inclusion and exclusion criteria.

Table 1 summarizes the clinical data for the selected papers, Bordi *et al.* [1] reported that 126 suspected patients have undergone for COVID-19 test in Rome. They indicated that 3 out of 126 patients had confirmed COVID-19. They mentioned that the positive test of the respiratory pathogens might be related to other virus such as influenza. They advised to use a broad-spectrum molecular diagnostic for fast detection of this new virus.

Chen *et al.* [4] indicated that 99 patients had confirmed COVID-19 in China. COVID-19 was detected in 67 males and 32 females. The mean age was 55.5 years. Fifty (51%) patients had chronic diseases, including cardiovascular endocrine system disease, digestive system disease, respiratory system disease, malignant tumor, and nervous system disease. The most common clinical features are cough and fever in 82% and 83% of patients. All the patients stay in hospital for isolation and 75% had undergone for antiviral treatment. Thirty-one (31%) patients had been discharged, 11 (11%) were died. Two out of 11 died patients had no history of chronic disease but they were smokers. Nine out of 11 of patients who died, five were older than 60 years, three had hypertension, and one was heavy smoker. They highlighted that the reduction in lymphocytes value in most infected patients indicated

that COVID-19 causes damage for the immune cells and blocks the body cellular immune function.

Stoecklin *et al.* [8] reported that three cases confirmed COVID-19 in France. First, the patient complains of fever, headaches, and cough; second, the patient develops of fever, chills, fatigue, conjunctivitis, and cough; and third, the patient develops fever, chills, fatigue, and cough. Patients age was 30-31 and 48 years old.

Patel and Jernigan [9] reported that 11 cases were identified in the USA with COVID-19. The patients age ranges from 20 to 60. Patients complain of fever, cough, or sore throat and no death reported.

National Emergency Response Center, Epidemiology, and Case Management Team [10] indicated to 28 cases detected in South Korea with COVID-19. Patients age ranges from 20 to 79. They complained of fever, sore throat, cough, chills, muscle, and ache.

Spiteri *et al.* [11] reported that 38 cases confirmed with COVID-19. The symptoms were fever, cough, weakness, headaches, sore throat, rhinorrhea, and shortness of breath.

Discussion

COVID-19 is a danger virus which can spread from human to human. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes [6], [7]. These infected droplets can spread 1–2 m and deposit on surfaces. COVID-19 is transmitted either by inhalation of these droplets or touching surfaces contaminated by patient and touching the nose, mouth, and eyes [2], [6], [7], [12]. Most of the published articles or reports concerning COVID-19 missed many useful information to assess this virus in infected patients. The incubation period of this virus is 14 days [2], [12].

Some patients infected with the COVID-19 virus with mild-to-moderate respiratory illness showed recovery without requiring special treatment [12]. Older people, compromised patients such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to show bad prognosis [2], [3], [12]. In another study, nine pregnant women [13] infected with COVID-19, there was no transmission of COVID-19 to their new born babies. The World Health Organization (WHO) indicates to protect yourself by washing hands and used alcohol based rub frequently and not touching face [7]. The most common symptoms of COVID-19 are fever and cough [3], [4], [10]. Some patients may have aches and pains, nasal congestion, runny nose, sore throat, or diarrhea. You can catch COVID-19 from patients looks not ill or with mild symptoms [7]. It is recommended to keep at least 1 m (3 feet) distance between yourself and anyone who is coughing or sneezing [3], [7]. Also use tissue to cover your eye and nose when you are coughing or sneezing [7]. The WHO is mentioned [7] to avoid contamination of uncooked foods. The recommended method of COVID-19 is nucleic acid detection in the nasal and throat swab sampling or other respiratory tract samplings by real-time PCR [3], [12]. Furthermore, throat swabs test shows positive in the 1st day of infection and by contrast, rectal swabs show positive in the latter period of infection [14]. We declare from our extensive reading in literature that false negative results in detection COVID-19 in some patients although its presence in body. These false negative result due to different reasons such as an improper collection of sputum samples, inhomogeneous sputum, contamination of the collected sample, ignorance of viral load due to the early stages of the infection, inappropriate diagnostic kits, sampling from inappropriate site of the throat in the throat swab, no good training and skills, and poor experience. There is no specific antiviral treatment recommended for COVID-19, and no vaccine is currently available. The treatment is symptomatic, and oxygen therapy represents the major treatment intervention for patients with severe infection. Immunocompromised patients should avoid public exposure. Despite the limitations of this study it highlighted the most critical issues concerning COVID-19. The clinical manifestations of COVID-19, determination of route of transmission for COVID-19, diagnostic tools of COVID-19, prevention and modalities of treatment, following up of infected patients for long term after recovery, are essential points to be considered in any future research in order to obtain more valid results about the nature and behavior of COVID-19.

. There is no clear international plan to stop spreading this virus as it spreads in more than 100 countries in the world. The current available plan is to stay home in all countries specially those which have many patients confirmed COVID-19. Although China has made a great progress in stop this virus and many patients showed a good recovery, this needs follow-up

of the previous cases to avoid secondary infection and to do full screening for all healthy people that contact with infected patients. This international pandemic COVID-19 showed that there is lack of education for public to deal with any danger disease-like COVID. The only available data in literature are case series. We believe that the number of infected patients in some countries is not reliable and needs hard work from the WHO to evaluate and confirm the cases number. Most published data on COVID-19 need to differentiate between mild, moderate, and severe cases that need to refer to hospital. We have noticed poor information about the died patients infected with this virus. No long follow-up for patients get recovery. Recurrent cases of COVID-19 should highlight. The WHO should educate the health workers over the world with strict criteria to detect this virus and avoid transmission the virus to them.

Conclusion

This virus outbreak has challenged the economic, medical, and public health infrastructure, of the most countries in the world. Strict procedures should be taken in the near future to avoid outbreak of this virus of zoonotic origin. People over the world are looking for finding new vaccination to avoid this virus and the best treatment to save their life.

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