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(REVIEW ARTICLE)

Review of Coronavirus disease- 2019 (COVID-19) in Iraq

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Abstract

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV 2) or 2019 novel coronavirus (2019-nCoV) is quickly spreading to the rest of the world, from its origin in Wuhan, Hubei Province, China. And becoming a global pandemic that affects the world's most powerful countries. The goal of this review is to assist scientists, researchers, and others in responding to the current Coronavirus disease (covid-19) is a worldwide public health contingency state. This review discusses current evidence based on recently published studies which is related to the origin of the virus, epidemiology, transmission, diagnosis, treatment, and all studies in Iraq for the effect of covid-19 diseases, as well as provide a reference for future researchers. The findings of this review show significant differences across gender, age group, area of residence, environmental agents (temperature, humidity), and people with chronic diseases (hypertension, diabetes mellitus, heart disease, respiratory disorders, and immunocompromised disease). To control the pandemic, information about COVID-19 was disseminated to people, including wearing a face mask and using a social distancing strategy as an effective tool for controlling COVID-19. More education and progress are required to convince the public that the vaccine is both effective and safe.

Keywords: SARS-COV-2; Mutations; Pandemic; Coronavirus Disease -2019 (COVID-19); Iraq.

1. Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV 2) or 2019 novel coronavirus (2019-nCoV) is quickly spreading to the rest of the world, since its inception in Wuhan, Hubei Province, China [1]–[3]. And becoming a global pandemic that affects the world's most powerful countries [4]. COVID-19, which debuted in December 2019, is a global threat, especially given the rapid rise in acutely ill pneumonia patients and the lack of a cure [5]. COVID-19 is a coronavirus family species, It's a zoonotic virus from the Coronavirus family, which is member of the Coronaviridae suborder [6]. Population density, demographics, migration, the extent of testing and reporting, mitigation strategies, and other factors that influence cumulative incidence variation by state were all possible [7],[19]. The novel coronavirus is thought to be infectious, when patients show no symptoms during the incubation period [8].

2. Epidemiology of COVID-19

On December 29, 2019, in Wuhan City, Hubei Province, China, The first four cases of acute respiratory syndrome with an unknown cause were reported among people connected to a local seafood market ("wet market") [9]. Several studies have suggested that bats could be a potential SARS-CoV-2 reservoir [10],[11]. Following virus genome sequencing, COVID-19 was compared across the entire genome to Bat CoV RaTG13 and revealed 96.2 percent overall genome sequence identity [12].

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3. Origin of COVID-19

SARS-CoV-2 is a type of B-coronavirus, which is an enveloped virus, positive-sense RNA virus, non-segmented virus belongs to (subfamily-Orthocoronavirinae, subgenus-sarbecovirus) [13]. Coronaviruses (CoV) are categorized into 4 genera: α, β, γ and δ-CoV. Which infect mammals represented α-CoV and β-CoV, whereas γ-CoV and δ-CoV primarily infect birds [14]. Bats are suspected of being the virus's natural host, based on evolutionary analysis and virus genome sequencing, SARSCoV-2 could be spread from bats to humans through unidentified intermediate hosts [15].

4. COVID-19 Transmission

SARS-CoV-2 is primarily spread among family members, such as friends and relatives, who have had close contact with incubation carriers or patients [16]. According to the report, SARS-CoV and MERS-CoV are primarily spread through nosocomial transition. The main route of SARS-CoV-2 transmission was thought to be through wild animal consumption or direct communication with intermediate host animals, the SARS CoV-2 source(s) and transmission routine(s) are still unknown [17], [18]. The virus, like influenza and other respiratory pathogens, is spread through close people contact via coughing or sneezing. COVID-19 is more common in people who have heart or lung disease, have a weakened immune system, are infants, or are elderly [19]. All possible modes of SARS-CoV-2 infection which includes; transmission of droplets (family members, family visitors), close contact and Infections acquired in hospitals are all examples of vertical transmission of the virus from the mother to the fetus [20]. The number of infected people who had never been exposed to wildlife or visited Wuhan has increased, and there have been Infections cases in multiple between professionals medical [21]. Droplet transference has been reported when the presence of droplets from respiratory (such as those produced when an infected person sneezes or coughs) are inhaled or ingested by people in contact transmission; close proximity occurs when a person touches a virus-infected surface or object and then touches their eyes, mouth or nose; and droplets transmission has been indicated when a subject touches a virus-infected object or surface and then touches their eyes, nose or mouth; When respiratory droplets mix with the air to form aerosols, infection can occur. When a large amount of aerosols is inhaled into the lungs in a relatively enclosed space [22].

5. COVID-19 Clinical Features, Incubation period

COVID-19 can cause a wide range clinical manifestations , from asymptomatic to multi-organ failure and acute respiratory distress syndrome [23]. Fever and cough were the most common signs, with top respiratory and gastrointestinal symptoms being uncommon, indicating differences in viral tropism when comparison to SARS-CoV, MERS-CoV, and influenza [24], [25]. Incubation period, which can begin as early as 2 days after virus exposure and last as long as 14 days [19].

6. Diagnosis of COVID-19

All clinical sample laboratory procedures have previously been reported. To summarize, throat swabs and nasopharyngeal, as well as urine and stool samples, were gathered and placed in viral transport media. The serum was separated from the clotted blood bottle and the plasma was split from the EDTA bottle [26]. In general, polymerase chain reaction testing is used to diagnose SARS-CoV-2. However, Due to the low sensitivity, false-negative test results are possible and high specificity of SARS-CoV-2 nucleic acid testing. False-negative test results are caused by a variety of factors, including specimen source, specimen collection method, and time since exposure. [27].

7. COVID-19 Treatment

For the treatment of COVID-19, various drug classes are being evaluated and developed, Corticosteroids may be used to reduce the extent of lung damage caused by an incendiary reaction [28]. Chloroquine/hydroxychloroquine is one of the most promising compounds with anti-COVID-19 activity that has gotten international attention [29]. Lopinavir-ritonavir is a fixed-dose protease inhibitor mixture used to treat HIV [30]. This combination has been shown to be effective against the SARS virus (severe acute respiratory syndrome) [31]. Remdesivir is an adenosine analogue monophosphoramidate prodrug [32]. It's a broad-spectrum antiviral drug that's been tested in vitro against a diversity of RNA viruses, inclusive Ebola and CoV [33]. A humanized IgG1 antibody is Tocilizumab which suppresses the inflammatory cytokine interlukine-6 (IL-6) receptor, suppressing the immune system [34]. Adult rheumatoid arthritis, juvenile idiopathic arthritis and giant cell arteritis are among the conditions for which the drug is approved [35].

8. COVID-19 in Iraq

The review was based on data gathered and synthesized from 18 articles written by Iraqi researchers from north to south. These came from Google Scholar and Iraqi Academic Scientific Journals. The focus of these studies was on the relationship between the Coronavirus pandemic (COVID-19) and its effect on various human diseases.

9. COVID-19 studies in Iraq

The review was based on data gathered and summarized from articles written by Iraqi researchers in various geographical areas. These were gathered from Google Scholar and academic scientific journals published in Iraq, as well as other scientific journals. In response to the current coronavirus outbreak (covid-19), which is a public health emergency on a global scale. There are several studies:

The First articles Ghazi et al. [36] Reported study The vast majority of those polled knew a lot about COVID-19 (95.2 %). According to 97.8% of the respondents, COVID-19 is a virus-caused infection. When asked about the incubation period, 75% correctly answered 2–15 days. Higher percentages of participants, thought the disease was (39%) very dangerous and (37.9%) seriously dangerous. The large percentage of those polled (85.3 %) believed the disease had no vaccine obtainable. Only 19.5 percent of the participants (76.5%) wore a face mask all of the time, while more than two-thirds (76.5%) wore one occasionally. The majority of the people (265 out of 272) If staying at home was necessary to prevent the disease from spreading, they were willing to do so. State of residence, gender, and knowledge of COVID-19 all had a significant relationship ($p = 0.009$, 0.0001), respectively.

Dawood et al. [37]. The study included a total of 200 patients, with 67 (33.5%) and females133 (66.5%) males, ranging in age from 14 to 89 years old, with an average age of 46.4 years. In 80 patients, there was a history of contact with a COVID -19 positive case (40 percent), 11 patients (5.5%) had Ischemic Heart Disease, 34 (17%) had hypertension, and 36 patients had diabetes mellitus (18 percent). The age group of 21-39 years old was the most frequently seen there were 76 patients- 38% of the total. A most common symptoms were fever (76.5 %) and generalized weakness (73 %). Gender and rhinorrhea were found to have a statistically significant relationship with age ($p = 0.08$), as were nausea and/or vomiting ($p = 0.005$) and dyspnea ($p = 0.014$) and diarrhea ($p = 0.035$).

Amen et al. [38] show the SD had a mean age of 40.5±16.1 years. After an average of 31 days of COVID-19 recovery, 91.4 percent of all patients had at least one continuous signs. Fatigue (42.9%), dyspnea (32.8%), and chest pain (25.7%) were the three most common ongoing symptoms. Among hypertensive patients, there was a statistical difference ($P = 0.002$), 45.5 % of whom had persistent palpitation. Ischemic heart disease patients experienced constant chest pain in 25% of cases, and 37.5 % experienced post-recovery palpitation. Patients who wore masks before becoming infected were treated at home 85.4 % of the time and did not require hospitalization. Overall, 45.7 percent of those who were dyspneic throughout infection revealed exertional dyspnea after recovery ($P = 0.041$).

Abbas and Manhal [39] with confirmed COVID-19, a total of 1781 positive cases were found. Hypertension, diabetes mellitus, and respiratory disorders were identified as comorbidities in the study participants. The most common comorbidity in (COVID-19) patients was hypertension, follow via diabetes mellitus and respiratory disorders. Those Patients with comorbidities were found to be significantly related to positive RT-PCR results for COVID-19, according to the findings of this study.

Ad'hiah et al. [40] Males had a greater COVID-19 percentage than women's (all cases: 59.7 vs. 40.3 %; vs. 32.4 %); recovered cases: 55.8 vs. 44.2 %). In deceased cases, even more pronounced was the male gender preponderance (67.6 vs. 32.4 %). Group AB could be a COVID-19 sensitivity biomarker, according to the findings of this study. Whereas group A could be linked to an increased risk of death.

Hwaiz et al. [41] In the Iraqi city of Erbil, the temperature and relative humidity were measured. The patients' ages' domain from two to seventy. There were 57.7 % of males, 31.3 percent of females, and 11% of children among the 1469 patients who had a positive COVID-19 test. During the interrupted relaxation lock period, the average number of patients per day was 32.77. Which was significantly more than in the total-lock interval (3.88 patient) and the relaxation lock interval (1.93 patient). During the period of interrupted relaxation lockdown, the daily mortality rate was 0.77, which was significantly greater than the previous periods' rates (0.0 %). Furthermore, in July, The number of confirmed cases increased as the temperature rose, while the rate of reported cases increased significantly as the relative humidity dropped.

Al-Mosawi [42] show in study In February 2020, the worldwide coronavirus pandemic was first confirmed to be spreading in Iraq, during which time the Iraqi government announced In the province of Al-Najaf, SARS-COV-2 infection has been confirmed for the first time were discovered on February 22. Further, All Iraqi governorates have confirmed coronavirus cases, with infection and death rates rising in (June and July) 2020, reaching 1945 to 2010 as daily infection average across all Iraqi governorates.

Alkotaji and Khalaf [43] The goal of this study was to determine the importance of pulmonary surfactant in lung physiology as well as its potential immune-modulatory effects. In addition, the components of pulmonary surfactant are discussed, as well as their roles in preventing COVID-19 complications. Surfactant therapy, which can be in the form of exogenous (synthetic) surfactant administered via endotracheal tube or aerosolization, may play a part in COVID-19 therapy, according to this article. The advantages and disadvantages of these administration methods have been discussed. Furthermore, administering a drug that stimulates surfactant synthesis has been suggested as a possible way to stimulate endogenous surfactant.

Hashim et al. [44] In the Ivermectin-Doxycycline group, 3/70 (4.28 percent) and 1/11 (9 percent) of all patients the disease has moved on to a more advanced stage, respectively, compared to 7/70 (10 %) and 7/22 (31.81 %) in the control group (P>0.05). In the mild-moderate, severe, and critical categories patients with COVID-19, the mortality rate was 0/48 (0%), 0/11 (0%), and 2/11 (18.2%), respectively, in the Ivermectin-Doxycycline group versus 0/48 (0%) and 6/22 (27.27%) in the standard therapy group in mild-moderate and severe COVID-19 patients, respectively (p=0.052). Furthermore, the mean time to recovery in mild-moderate, severe, and critical COVID-19 patients in the Ivermectin-Doxycycline group was 6.34, 20.27, and 24.13 days, respectively. versus 13.66 and 24.25 days in COVID-19 patients with mild to moderate disease, as well as those with severe disease patients with mild to moderate disease, as well as those with severe disease, respectively, in the standard therapy group (P0.01).

Al-Hamdani et al. [45] in Mosul According to the two intervention strategies, the baseline epidemic scenario affected 12.3 percent of the population on average, compared to 11.6 percent with a single strategy at a contact rate of 70%. In the two-intervention strategy, at a rate of 20% social contact, only 0.11 percent of the population will be infected, compared to 0.165 percent in the single strategy. This means that the spread of the infection will be significantly reduced, and the peak time incidence in all hypotheses will be significantly delayed. The two-intervention social distancing strategy was concluded to be an effective tool for controlling COVID-19 in Mosul city, and this represents a significant success for Crisis Cell in controlling the pandemic in Mosul city.

Mohammed et al. [46] Reported study the patients involved in the study had a mean age sd of = 37.918. 85 years, with 51.2 percent being males. Age, marital status, hypertension, the severity of the illness of admission, and the length of hospital stay are all things to take into account. Were all statistically significant predictors of outcome?

Habib et al. [47] The average age in Basrah was 46 years old (median 45 years), with domain of 13 to 98 years. There was no difference in COVID-19 risk based on gender. The results of geographical variation were inconclusive. In terms of new daily cases and cumulative numbers, the epidemic's time trend is modest. The incidence domain was 56.28 per million at one time in history (April 10) and was intermediate among other provinces. In total, 1279 cases were used in Iraq. Baghdad, Najaf, Erbil, Basrah, and Sulaymaniyah reported the highest numbers. Salah Al-Din had the lowest incidence rate (0.61 per million), while Najaf had the highest (170.16 per million). Between provinces, closed cases and all cases had different case fatality ratios.

Habib et al. [48] The second is the daily number of new cases (also 736) gleaned from the Ministry of Health's daily communiqué. The median age was 34 years (males = 34 and females = 33), and the mean age SD was 35.5 18.9 years (males = 35.6 19.0 and females = 35.5 18.8). Older age groups, females, and three districts had higher incidence rates (Basrah city, Al-Hartha and Al-Mdaina). The case fatality rate was within international guidelines, and it was significantly influenced by age (older age is associated with a higher fatality rate), travel history, and the attending of co-morbidity. The epidemic curve is moderate and fluctuant, and it does not yet assist in predicting when the epidemic will end. The COVID-19 epidemic in Basrah is moderate, clustered in transmission, and changing over time, but it is unpredictably unpredictable.

Kadhim et al. [49] The survey was completed by 483 people in total. The most common age group (28.2 percent) was 26–35 years old, with 280 (58 percent) males and 203 (42 percent) females. 282 (58.4%) of the participants had less than a Bachelor's degree, 342 (70.8%) were married, and 311 (64%) lived in Basra districts other than the central district. Overall, 50.8 percent (11.8/ 22 * 100 percent) of people knew what they needed to know about COVID-19. There was a significant relations (p0.05) between the level of COVID-19-related misinformation and the participants'

educational levels and occupation. However, no significant differences were found when it came to sex, age group, marital status, or area of residence.

Hijaj et al. [50] There were 696 cases in total, ranging in age from one - 99 years. Males made up 42.5 percent of the population, while females made up 57.5 percent. The vast majority of cases came from Basrah and the Hartha district. The majority of cases involved housewives 28.4 % and self-employed people 21.6 %. The majority from the cases (51.3 %) were asymptomatic or had a mild condition (30.3 %). Critical cases accounted for only 3.2 % of all cases, and case fatality was lesser (2.6 %). Both severe cases and higher case fatality were significantly predicted due to the presence of advanced age, co-morbidity, and history of travel.

Hussein et al. [51] The infection rate of corona virus in men (66.3 percent) is twice as high as it is in women, according to a study sample of 1101 patients with "COVID-19" (33.7 percent). Patients between the ages of (26-35) were significantly higher than patients of other ages at (2: 60.351, p-value: 0.01). The percentages of B+, AB+, O+, A+, B-, AB-, A-, and O- in the Study sample were 28.34 percent, 16.44 percent, 14.26 percent, 11.63 percent, 9.9 percent, 8.26 percent, 7.45 percent, and 3.72 percent for B+, AB+, O+, A+, B-, AB-, A-, and O-, respectively.

The number of cases with blood type B+ was significantly higher than the other blood groups in the current study, while the number of cases with type O- blood in the corona virus infection was significantly lower than the other blood groups when age was compared at P- value: 0.01. On the other hand, the rate of single patients (62.94 percent) is higher than the national average.

Raghad and Layla [52] Every six days, this study compares the average RO, new case rates, recovery rates, and death rates in Iraqi provinces. The city with the highest average number of new cases was Baghdad. While Babil 2.8 7.6 and Salah aldin 2.57.7 had the highest RO values. The highest average recovery rates were found in Erbil and Kurkuk. The highest average death rates were found in Babil and Dhiqar. Duhock, on the other hand, had no deaths at the time of the study. The data necessitates the attention of the Ministry of Health and Environment in order to close performance gaps, as evidenced by Iraq's out-of-control pandemic.

Ghazi et al. [53] A cross-sectional study to 1069 respondents from various Iraqi regions was conducted. Using questionnaires on the internet. Despite the fact that 77.6% of those polled said they would get the COVID19 vaccine if it became available, the majority of people (64.3%), however, said they would wait a while before doing so. Oxford (AstraZeneca) vaccine was preferred by the majority (48.6%), nearly two-thirds promised to pay a price in exchange. With P values (0.001, 0.001, 0.001, 0.05, 0.001), There was a connection between age, occupational status, educational level, and having COVID19 infected family members, and having previously received a flu vaccine and acceptance of the Covid19 vaccine. Overall, the general public appears to be eager to push for the COVID19 vaccine when it becomes available. More education and advancement are needed to persuade the public that the vaccine is both effective and safe.

10. Conclusion

The findings of this review show significant differences across gender, age group, area of residence, environmental agents (temperature, humidity), and people with chronic diseases (hypertension, diabetes mellitus, heart disease, respiratory disorders, and immunocompromised disease). To control the pandemic, information about COVID-19 was disseminated to people, including wearing a face mask and using a social distancing strategy as an effective tool for controlling COVID-19. More education and progress are required to convince the public that the vaccine is both effective and safe.

Compliance with ethical standards

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Disclosure of conflict of interest

There is no conflict of interest.

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