Investigating the COVID-19 transmission methods among patients in Karbala province

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ABSTRACT

In the midst of the COVID-19 pandemic, there is confusion about the features of the uncommon epidemic. Some of the critical uncertainties concern the means by which COVID-19 is transmitted, are the mode of transmission, the position of asymptomatic infected persons, its speed, potential interactions with wildlife or livestock, urban or rural environments, and population density, with particular regard to the factors which may accelerate or delay its spread. This study attempts to reject or prove that the major cause of transmission of covid-19 is by direct contact with patients with COVID-19. Or if traveling or interaction with new arrivals may or may not increases the rate of infection. Previous studies focused on modes of transmission, and stated that the most typical of them are from one person to another, but that studies did not focus on whether traveling to another country or mixing with travelers could increase the rate of the infection. The study was carried out on February 27, 2020, in Al-Zahrawy College and Al-Hussainy Medical City. A questionnaire was given to 200 patients and only 150 responded, the questions were about if any of the patients had direct interaction with people with Coronavirus. And if the patient has been traveling outside of Iraq, or if they had ever connected with new arrivals from outside Iraq. Patients were followed up to identify the following; recovery, under ICU, and mortality rates. The results showed that 66\% (100 Participants) of them were healthy, 33 \%( 50 Participants) were infected. Furthermore, When interacting with Covid-19 patients or not, the percentage is equivalent. Interaction with newcomers from outside Iraq, or even traveling to other countries, the rate of covid-19 transmission did not increase much. The patient’s follow-up shows that 60\% (30 patients) of the infected cases were admitted to the ICU, 4\% (2 patients) died, and the recovery rate was 36\% (18 patients).

Keywords: COVID-19, transmission, epidemic

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INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a newly emerging disease that, as it has spread rapidly across the world, has become a major public health concern. The International Committee on Virus Taxonomy has designated the etiologic agent responsible for this disease as severe acute respiratory syndrome...
coronavirus-2 (SARS-CoV-2) because it exhibits similar genomic characteristics to SARS-CoV, which triggered a pandemic in 2002. This disease first arose in China's Hubei province and it follows human-to-human transmission, but the route this virus took to set up human infection remains a mystery. Evidence currently available suggests that COVID-19 can be transmitted via many different routes from person-to-person. The primary mode of transmission of human coronaviruses in the scoping analysis reported by La Rosa et al[1] is person-to-person contact through respiratory droplets triggered by breathing, sneezing, coughing, etc., as well as contact (direct or indirect contact with the infected subject, through the hand-mediated transmission of the virus from contaminated fomites to the mouth, nose, or eyes) (7).

The chronology of coronavirus infections is as follows 1/the first state was reported in December 2019, five patients were taken to the hospital having acute respiratory syndrome and one of them died. On January 2, 2020, 41 patients were found indication of having a coronaviruses infection; about half of these patients had the following problems, such as cardiovascular disease, diabetes, and hypertension [6]. It was thought that coronavirus is not a super-hot transmitted virus but it is spread by infected patients at different places in hospitals of fuzzy mechanism.

There has been evidence that bats are the key emerging sources of SARS-CoV since serological evidence of prior CoV infection and SARS-related CoV sequences are included in Chinese horseshoe bats. The proper proof that SARS-CoV emerged in bats was that angiotensin-converting enzyme 2 (ACE2) had the same receptor as the human virus. Though COVID-19 has not ended the basic outlines of disease transmission because it is a respiratory disease virus, it transmits primarily through direct contact with healthy people through infected individuals, it evolves due to close contact with an infected person exposed to respiratory droplets, aerosols, coughing and sneezing (5). Via inhalation from the nose or mouth, these aerosols will reach the lungs of the human body (2).

The purpose of this study is to determine the number of cases in direct or indirect contact with persons infected with Coronavirus in Al-Zahrawi University College and Al-Husseini Hospital, Karbala, Iraq since it was found that between February and June the number of infections was approximately 50 cases for patients who were in contact with infected persons. The number of infections was defined by a questionnaire at Al-Zahrawi College and Al-Husseini Hospital in the surgery clinic.

The questions were about “the last time the patient traveled outside Iraq”, “Has the patient been visited by someone from outside Iraq or from neighboring countries?” As well as initially knowing the methods that the virus had been transmitted. As it was understood that the virus is transmitted only by droplets in the infected person's mouth and stays on the surfaces It is easily transferred from one person to another in contact with the spray (4).It was understood that the virus was only transmitted from an infected person's mouth by droplets, and it persists on surrounding surfaces and is easily transferred from one person to another in this way(3).
MATERIALS AND METHODS
The study was carried out on February 27, 2020, in Al-Zahrawy College and Al-Hussainy Medical City. A questionnaire was given to 200 patients and only 150 responded. The normal signs of high fever and coughing were observed in most of these patients, and some of them had diarrhea. The questions were about if any of the patients had direct interaction with people with Coronavirus. And if the patient has been traveling outside of Iraq, or if they had ever connected with new arrivals from outside Iraq. Patients were followed up to identify the rates of healthy, infected, recovery, under ICU, and mortality rates.

RESULTS AND DISCUSSION
The current study showed among the 150 individuals who were involved in the questionnaire, 66% (100 were healthy) of them were healthy, 33% (50 patients) of them were confirmed to be infected with the Coronavirus (COVID-19), the data is going to deal with the 50 patient only.

Table (1) show the number healthy and infected individuals

<table>
<thead>
<tr>
<th></th>
<th>Healthy</th>
<th>Infected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100/150×100</td>
<td>50/150×100</td>
</tr>
<tr>
<td></td>
<td>=66%</td>
<td>=33%</td>
</tr>
</tbody>
</table>

The current study showed that the percentage is equivalent, between those who were interacted with COVID-19 patients and those who did not have any interaction with any of them. 50% (25 patients) were in close contact with individuals with confirmed coronavirus disease (COVID-19), and 50% (25 patients) did not have any interaction with any of them. Evidence from published epidemiological and virological studies indicates that COVID-19 is mainly transmitted from symptomatic people who are in close contact with others through respiratory droplets, via direct contact with infected individuals, or by contact with objects and surfaces that are contaminated. Moreover, in a small number of case reports and studies, a pre-symptomatic transmission has been documented through contact tracing efforts and enhanced investigation of clusters of confirmed cases.

Table (2) shows the number of patients who were in direct interaction with other COVID-19 patients and those who had no direct interaction with any of them

<table>
<thead>
<tr>
<th>patients who were in direct interaction</th>
<th>patients who had no direct interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% (25 patients)</td>
<td>50% (25 patients)</td>
</tr>
</tbody>
</table>

For those who traveled to other countries during the time preceding their sickness, or those who interacted with newcomers from outside Iraq, the result was not close at all. 6% (3 Patients) of them were with direct interaction, 94% (47 Patients) of them with no direct interaction.
Table (3) Demonstrate the rate of patients who had direct interaction with new arrivals or traveled themselves to another country

<table>
<thead>
<tr>
<th>Patients with direct interaction</th>
<th>Patients with no direct interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>6% (3 Patients)</td>
<td>94% (47 Patients)</td>
</tr>
</tbody>
</table>

All patients who participated in the questionnaire were followed up, 60% (30 patients) of the infected cases were admitted to the ICU, 4% (2 patients) died, and the recovery rate was 36% (18 patients).

Table (4) the follow up of the patients

<table>
<thead>
<tr>
<th>Under ICU</th>
<th>Recovery</th>
<th>Died</th>
</tr>
</thead>
<tbody>
<tr>
<td>30÷50×100</td>
<td>18÷50×100</td>
<td>2÷50×100</td>
</tr>
<tr>
<td>=60%</td>
<td>=36%</td>
<td>=4%</td>
</tr>
</tbody>
</table>

There were problems in the diagnosis due to changes in symptoms in the primary stage of the coronavirus outbreak. Fever was discovered at the beginning in 10% of patients, after hospitalization, it becomes around 5%. Around 6% of these patients had a history of close interaction with new arrivals or traveled themselves to another country, all of whom have been outside Iraq for the past six months.

This result indicates a 4% mortality rate among 150 patients as of March 2020. This research did not involve patients who had a minor illness and who did not receive medical attention, compared to the World Health Organization mortality rate, this percentage was considered high because of several reasons:

1) Most of the cases are for the elderly, and they often catch the infection more easily than younger ages.
2) The patient went to the hospital during the late phase of the illness, which led to complications in responding to the treatments.
3) Lack of health awareness among patients, for example, not wearing a mask and not taking other precautions.
Figure (1) shows the percentage of healthy, infected, under ICU, recovery, and number of deaths in Al-Hussainy medical city hospital in Karbala.

Figure (2) shows all the infected cases.

Figure (3) shows infected and healthy cases.
CONCLUSION

Epidemiological studies are one of the most common study that discuss infectious like (COVID19) and noninfectious problems that facing the population and give an important information to avoid them [8, 9]With consideration of methods of Covid-19 transmission, this paper proved that, When interacting with Covid-19 patients or not, the percentage is equivalent, as COVID-19 is primarily transmitted by respiratory droplets from symptomatic people to those who are in close contact, furthermore, a pre-symptomatic transmission has been documented in other studies, consequently, protective precautions must always be taken at all times. This research also found that except for a slight rise in the ratio (6%), mixing with newcomers from outside Iraq, or even traveling to other countries, the rate of covid-19 transmission did not increase much. The patient’s follow-up shows that 60% (30 patients) of the infected cases were admitted to the ICU, 4% (2 patients) died, and the recovery rate was 36% (18 patients).

REFERENCES