

Case Study of COVID-19 from August to End of December 2020 in Babylon, Iraq

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Abstract

Objectives: The aim of study is to investigate the scenario of Case study of COVID-19 in Babylon Province in Iraq.

Methods: In January 2021 we started searching for the official source for the numbers of people infected with COVID-19 within the borders of Babylon Governorate, where the Babylon Health Department was reviewed, and after that we were directed with official authorization to the Public Health Department in Babylon Governorate/Department of Communicable Diseases/Respiratory Diseases Unit (weekly periodic visit). Where the official numbers were obtained for the number of infected people and the number of deaths that occur due to complication with this infection, as well as the number of recovery cases from the date of 1/8/2020 to 1/1/2021.

Results: Related to the number of infected cases we see decrease the no. of infected with corona virus in Babylon Governorate from beginning the study to become lest at the end of 2020 with the significant decrease ($P < 0.05$) (The highest infected cases were notices in first month (1/8–31/8) while the lowest cases were seen in last month (1/12–31/12)) that may be due to: The main cause may be the most people may have gained herd immunity or population immunity, is the indirect protection from an infectious disease that happens when a population is have immunity developed through previous infection, that may refer to the end of first wave of this pandemic which start from the June.

Conclusion: Knowing the pathogenesis of the virus and risk factors, increasing the experience of doctors and working cadres, increasing clinical capacity, providing specialized treatments, increasing the number of ICU beds, in addition to increasing the number of respiratory ventilators and increasing the number of tests.

Keywords: Case reports, COVID-19, Babylon, Iraq

Introduction

On 31 December 2019, the WHO was alerted to a cluster of pneumonia cases in Wuhan City, China. The proposed acute respiratory syndrome interim name of the virus is “2019 novel coronavirus” or “2019-nCoV”, after that called Coronavirus Disease 2019 (COVID-19).¹ After the disease caused by the Corona virus remained classified for months as “epidemic”, the World Health Organization (WHO) announced on the eleventh of March 2020 that the disease had turned into a “pandemic.” Covid-19 disease causes many and varied symptoms that may come alone or in the form of a group of symptoms, and they may be unpredictably simple or severe. Symptoms may appear two to 14 days after exposure. The most common symptoms that patients suffer from, as they may suffer from only some, but not all, and the severity of symptoms varies from person to person as some have few symptoms and may worsen in others, and among these common symptoms are:² High body temperature, Cough, breathing difficulty, Headache- Joint, muscle and bone pain, Fatigue and general shift with dizziness and imbalance, Feeling chills, Diarrhea and abdominal pain, and Loss of the sense of smell, taste, or both. Also, Redness or pain in the eye, Red blisters on the fingers and toes with itching or pain. There may be symptoms due to more severe complications, such as stroke, angina, or organ bleeding gastrointestinal or diabetes symptoms.³ The molecular detection methods involve the analysis of nucleic acids present in the sample to identify the virus. The most commonly used laboratory detection method for the clinical diagnosis of COVID-19 is real-time reverse transcriptase polymerase chain reaction (RT-PCR). The same technique has been used in the diagnosis and surveillance of various other viral diseases including SARS-CoV and MERS-CoV.⁴ Clustered Regularly Interspaced

Short Palindromic Repeats (CRISPR) is a group of nucleic acid sequences contained in bacteria. A collection of bacterial enzymes, called CRISPR-associated enzymes, can recognize and cut these sequences identified by Cas9, Cas12 and Cas13. Some enzymes were designed to attack and cut the viral RNA sequence in Cas12 and Cas13. Although viral RNA detection based on RT-PCR has also been commonly used in the diagnosis of COVID-19, it would not be used to track the progression of the phase of the infection. It cannot be used to identify immunity and past diseases broadly. The serological analysis is characterized as blood, serum, or plasma examination. IgM becomes observable in serum first, followed by IgG, which appears after a few weeks. So, IgM can be an early-stage disease indicator.⁵ The aim of study is to study Case study of COVID-19.

Methods

In 2/1/2021 we started searching for the official source for the numbers of people infected with COVID-19 within the borders of Babylon Governorate, where the Babylon Health Department was reviewed, and after that we were directed with official authorization to the Public Health Department in Babylon Governorate/Department of Communicable Diseases/Respiratory Diseases Unit (weekly periodic visit). Where the official numbers were obtained for the number of infected people and the number of deaths that occur due to complication with this infection, as well as the number of recovery cases from the date of 1/8/2020 to 1/1/2021. In addition to the number of tests performed during the same period, which obtained from the public health laboratory and in detail for all days, after that we collect the obtained data in Microsoft Excel program tables then statistically analyzed as show in results using spss version 16. Two types of sample specimens are being

primarily used for the diagnosis of COVID-19. Respiratory specimens are used for direct detection of virus as shown in Figure 2 and serum samples are used for identification of anti-viral antibodies.⁶ Direct detection of viral RNA in wastewater samples is also being used for community surveillance. The upper respiratory specimens are collected in the acute phase of infection—ideally within days. Lower respiratory specimens are obtained from patients still symptomatic after more than a week. Apart from nasal and throat specimens, sputum specimens are also collected for the diagnosis of COVID-19 by expectorating deep cough into a sterile container. Serum samples are collected for immunoassay methods.⁷

Results

The highest infected cases were noticed in first month while the lowest cases were seen at last month as shown in below Tables and Figures.

Discussion

As we see in the above Table 1 related to the number of infected cases we see decrease the no. of infected with corona virus in Babylon Governorate from beginning the study to become least at the end of 2020 with the significant decrease ($P < 0.05$) (The highest infected cases were noticed in first month (1/8–31/8) while the lowest cases were seen in last month (1/12–31/12)) that may be due to: The main cause may be the most people may have gained herd immunity or population immunity, is the indirect protection from an infectious disease that happens when a population is have immunity developed through previous infection, that may refer to the end of first wave of this pandemic which start from the

Table 1. No. of infected cases among the months ($P < 0.05$)

Date	Mean \pm Std. error	Std. deviation	95% Confidence interval for mean	
			Lower bound	Upper bound
1/8–31/8	333.03 \pm 8.463	22.531	390	180
1/9–30/9	112.27 \pm 6.420	35.166	99.14	125.40
1/10–31/10	92.16 \pm 8.393	46.733	75.02	109.30
1/11–30/11	95.13 \pm 10.141	55.547	74.39	115.88
1/12–31/12	30.13 \pm 3.831	21.329	22.31	37.95

Table 2. No. of healing cases among the months ($P < 0.05$)

Date	Mean \pm Std. error	Std. deviation	95% Confidence interval for mean	
			Lower bound	Upper bound
1/8–31/8	288 \pm 5.563	39.340	288.00	288.00
1/9–30/9	107.13 \pm 6.934	37.981	92.95	121.32
1/10–31/10	100.94 \pm 8.188	45.587	84.21	117.66
1/11–30/11	81.07 \pm 7.338	40.191	66.06	96.07
1/12–31/12	66.52 \pm 9.633	53.633	46.84	86.19

of the population has immunity to a disease, making transmission of the disease from person to person unlikely. As a result, the entire community is protected — not just those who are immune.⁸⁻¹⁰ As we see in the above Table 2 related to the number of healing cases we see decrease the no. of healing as a number (due to decrease the total number of cases) with time in the period of study in Babylon Governorate from beginning to the end of study, the highest healing cases were noticed in first month (1/8–31/8) while the lowest cases were seen in last month (1/12–31/12) with significant decrease ($P < 0.05$), but when we compare the percentage of healing Figure 1 at the same time we see marked increase in percentage of healing (significant) and that give us precise view about the healing increasing more than before and more than number of infected and dead cases at the same time, the highest percentage were noticed in month (1/12–31/12) while the lowest cases were seen in month (1/8–31/8), and also may be the same factors that lead to decrease the number of dead Table 3 at same time of study, the highest dead cases were noticed in first month (1/8–31/8) while the lowest cases were seen in months (1/11–30/11) and (1/12–31/12), significant difference ($P < 0.05$), and these factors may be: 1. Increasing the experience and competence of specialist doctors and medical staff in dealing with the new cases of infection and treatments depend on medical events and online conferences. 2. Knowing the pathogenesis and risk factors and associated or complicated prognosis that occur during or after infection with using specialist drugs in treatment depending on updated world protocols in treatments. 3. The virulence of virus may decrease due to multiple transferring from person to person, within a few

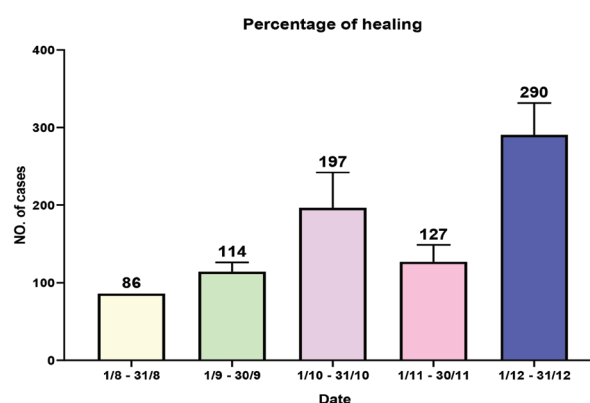


Fig. 1 Percentage of healing cases during the five months. The highest percentage were noticed in month (1/12–31/12) while the lowest cases were seen in month (1/8–31/8).

Table 3. No. of dead cases among the months ($P < 0.05$)

Date	Mean \pm Std. error	Std. deviation	95% Confidence interval for mean	
			Lower bound	Upper bound
1/8–31/8	12.77 \pm 2.63	1.340	15.00	8.00
1/9–30/9	1.90 \pm 0.20	1.094	1.49	2.31
1/10–31/10	1.61 \pm 0.158	0.882	1.29	1.94
1/11–30/11	1.07 \pm 0.179	0.980	0.70	1.43
1/12–31/12	1.10 \pm 0.908	4.669	0.76	1.43

decades, the virus evolved to reduce its virulence,^{11,12} unless mutation occurring. 4. Availability of (COVID-19) treating alleged medications in private sector and some of specialist costly medication in government hospitals. 5. Hospitalization expansion which means the opening of a number of centers and Inpatient lobbies in most hospitals for patients with COVID-19. 6. Increasing number of beds in intensive care units ICU with increasing number of ventilators for critical cases, with increasing number of CT scan especially in private sector which essential for early and precise diagnosis. 7. The Holy Shrine of Imam Hussain and the Abbasid Holy Shrine in Karbala with some donors, after reading what could happen in the future of events, led to the building of recovery centers urgently and quickly in order to control the possibility of further spread of this virus. Several centers have been built in Holy Karbala, Najaf al-Ashraf and Baghdad, as well as the rest of the centers that have been built in the cities of Iraq and in Babylon, two centers (al hayaa and alshifaa) have been built in Marjan Teaching Hospital and Alexandria Hospital in order to support the patients of the coronavirus and strengthen the role of the Iraqi Ministry of Health in the facing of this pandemic. 8. Medical staff and most health workers were exposed to certain amounts of the corona virus, which generated antibodies resembling those generated by the vaccine. pointing out that many doctors working in isolation halls for covid-19 patients had minor infections unlike the rest of the doctors (from

other specialties) many of whom died as a result of the virus. 9. Increase media campaigns and medical teams to advocate about the awareness of the disease and about the mechanism adopted for prevention and ways to deal with the disease in case of injury or contact the infected people. Also, we see in the above Table 4 related to the number of tests we see increase the no. of test of corona virus in Babylon Governorate from beginning of the study to become highest at the end of 2020. The highest numbers of tests were notices in last month (1/12–31/12) while the lowest numbers were seen in month (1/8–31/8 that give early diagnosis of infection and starting early treatment and that lead to decrease the death rate. In addition, we see the Percentage of positive tests Figure 2 decrease contentiously to become lowest at the end of 2020. The highest percentage were notices in first month (1/8–31/8) while the lowest cases were seen in month (1/12–31/12) that may be due to increase number of tests and decrease the number of infected cases. And also, the current laboratory capabilities in private sectors are better than before and the capacity of specialist laboratories is best with increasing number of tests in public health laboratory. Since the early diagnosis and then early starting in treatment may decrease the complication, health deterioration, bad prognosis and death.¹³⁻¹⁵

Conclusion

Knowing the pathogenesis of the virus and risk factors, increasing the experience of doctors and working cadres, increasing clinical capacity, providing specialized treatments, increasing the number of ICU beds, in addition to increasing the number of respiratory ventilators and increasing the number of tests, in addition to the reason that may be the most important is the large number of infections before this period, the factor that led to be herd immunity, all these factors and others contributed to reducing the number of deaths in the last period of the life of this study.

Funding

No funding sources.

Table 4. No. of tests among the months ($P < 0.05$)

Date	Mean \pm Std. error	Std. deviation	95% Confidence interval for mean	
			Lower bound	Upper bound
1/8–31/8	498.23 \pm 32.63	12.340	515.00	438.00
1/9–30/9	469.30 \pm 25.194	137.992	322.64	477.10
1/10–31/10	399.87 \pm 37.817	210.556	322.64	477.10
1/11–30/11	1007.27 \pm 112.119	614.099	777.96	1236.57
1/12–31/12	2774.35 \pm 89.537	498.524	2591.49	2957.21

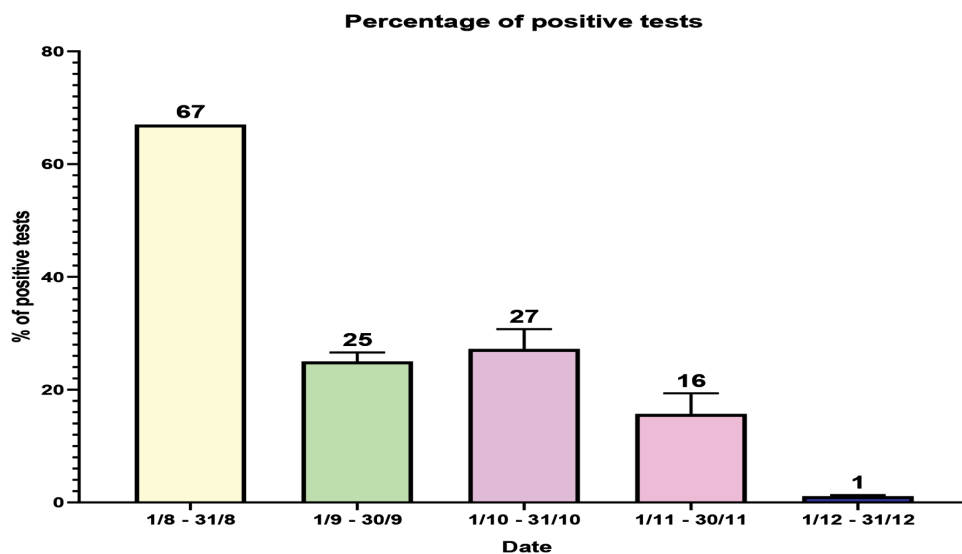


Fig. 2 Percentage of positive tests during the five months. The highest percentage were notices in first month (1/8–31/8) while the lowest cases were seen in month (1/12–31/12).

Conflicts of Interest

None declared.

Ethical Approval

The Institutional Ethics Committee approved the study. ■

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