



Open Journal of Pharmaceutical Science and Research

Review Article

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Study of the relationship between the mortality rate among patients with covid-19 and diabetes in al-bieda city

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Received Date: Sep 07, 2022 / **Accepted Date:** Sep 21, 2022 / **Published Date:** Sep 23, 2022

Abstract

Background and Aim: We have conducted a study on COVID-19 patients with diabetes who developed diabetes after infection with a virus and compared between diabetic and non-diabetic cases in terms of the effect of a virus on them and the mortality rate among them.

Methods: A cross-sectional study of COVID-19 patients in which 180 male and female cases, aged between 36 and 96 years, were reported. The collected data were analyzed and the outcome results were displayed in tables and charts. The diabetic patients, as noticed from charts and the calculation that were done by the research team, were more susceptible to die than non-diabetic patients of the near age.

Keywords: COVID 19; Diabetes; Libya; Patients

Cite this article as: Eman GA Allafi, Afya M Jadallah, Azza M Mohammad, et al. 2022. Study of the relationship between the mortality rate among patients with covid-19 and diabetes in al-bieda city. Open J Pharm Sci Res. 4: 01-05.

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Introduction

There's a bidirectional relationship between Covid-19 and diabetes. On the one hand, diabetes is related with an expanded hazard of extreme Covid-19. On the other hand, new-onset diabetes and extreme metabolic complications of preexisting diabetes, counting diabetic ketoacidosis and hyperosmolarity for which outstandingly tall measurements of affront are justified, have been watched in patients with Covid-19 [1-3]. These appearances of diabetes posture challenges in

clinical administration and recommend a complex pathophysiology of Covid-19-related diabetes. Serious intense respiratory disorder coronavirus 2 (SARS-CoV-2), the infection that causes Covid-19, ties to angiotensin-converting chemical 2 (ACE2) receptors, which are communicated in key metabolic organs and tissues, counting pancreatic beta cells, fat tissue, the little digestive tract, and the kidneys [4]. In this way, it is conceivable that SARS-CoV-2 may cause pleiotropic modifications of glucose digestion system that might complicate the pathophysiology of preexisting diabetes or

lead to modern components of malady. These are moreover a few points of reference for a viral cause of ketosis-prone diabetes, counting other coronaviruses that tie to ACE2 receptors [5]. More noteworthy rates of fasting glycemia and acute-onset diabetes have been detailed among patients with SARS coronavirus-1 pneumonia than among those with non-SARS Pneumonia [5]. RT-PCR For intense respiratory illnesses and utilized for patients with COVID-19 [6]. Beat oximetry Oxygen level drops for COVID-19 patients without respiratory side effects [7]. ABG Arrange in patients with serious ailment as demonstrated to distinguish hypercarbia or acidosis. Prescribed in patients with respiratory trouble and cyanosis who have moo oxygen immersion ($SpO_2 < 90\%$). The number of CD^{4+} and CD^{8+} T cells diminished in those enduring from incessant diseases [8]. Thyroid work test for constant illness Moo levels in a few patients of triiodothyronine (T_3) and typical or moo thyroid-stimulating hormone (TSH) [9]. Which we focused on in our research to find out the extent of its impact on patients with COVID-19 and its levels, its relationship to mortality Test for chronic diseases Fasting hyperglycemia independently has a poor prognosis and is associated with increased mortality, whether or not the patient has diabetes [10,11]. Hyperglycemia, the core feature of diabetes, is associated with inflammation and weakened immunity against infections, and was recognised as a significant risk factor for severe Covid-19 early in the pandemic. Serum C- reactive protein was elevated in severe cases [12,13]. Procedure for patients suspected of having pneumonia. Some studies said that chest infection correct for 80.6% patients with COVID-19, although 28% were diagnosed as not infected, but they were infected with COVID-19 [14]. Chest CT is sensitive and moderately specific for the diagnosis of COVID-19. Pooled results found that chest CT correctly diagnosed COVID-19 in 87.9% of people who had the disease. However, it incorrectly identified COVID-19 in 20% of people who did not have the disease [14]. Lung ultrasound is used as a diagnostic tool in some

centers as an alternative to chest x-ray and chest CT [15]. D-dimer COVID-19, the pandemic disease caused by infection with the novel virus, SARS-CoV-2 (severe acute respiratory syndrome coronavirus-2) can now be added to the already extensive list of conditions that may be associated with elevated D-dimer.

Material & Methods

A cross-sectional study for the years 2021-2022, 180 male and female cases were studied in Mansoura Hospital specialized in chest diseases, which is located in Jabal Al-Akhdar in Libya, located 20 km north-east of Al-Bayda city and north of the city of Shahat. The data were obtained from the hospital archive. All the tests, including PCR and chest X-rays, were carried out in the local laboratories.

Table 1: The cases understudy grouped in intervals.

Age intervals	Patients	Diabetic	Non-diabetic
30-40	6	2	4
41-50	25	8	17
51-60	28	19	9
61-70	42	25	17
71-80	53	25	28
81-90	17	8	9
91-105	7	2	5

D: diabetic, ND: nondiabetic

Result and Discussion

A cross-sectional study of COVID-19 patients in which 180 male and female cases, aged between 36 and 96 years, were reported. The collected data were analyzed and the outcome results were displayed in tables and charts. The diabetic patients, as noticed from charts and the calculation that were done by the research team, were more susceptible to die than non-diabetic patients of the near age. From the previous table, 50% of the cases are diabetics. The data analysis, displayed in the figures I and II, shows that the severity and the mortality rate in the

non-diabetic covid-19 patient increases with age. On the other hand, corona patient with chronic diseases, especially diabetes, the mortality percentage highly affected with general health status of the patients. The

exhausted body and weak immunity system in patients of chronic diseases share the responsibility with the invading viruses of the escalating mortality rate.

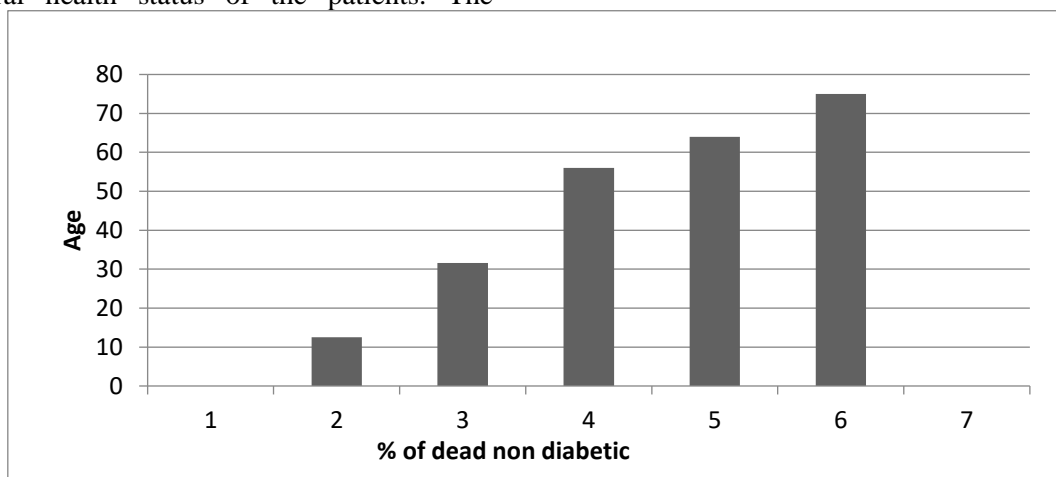


Figure 1: Percentage of dead non diabetic.

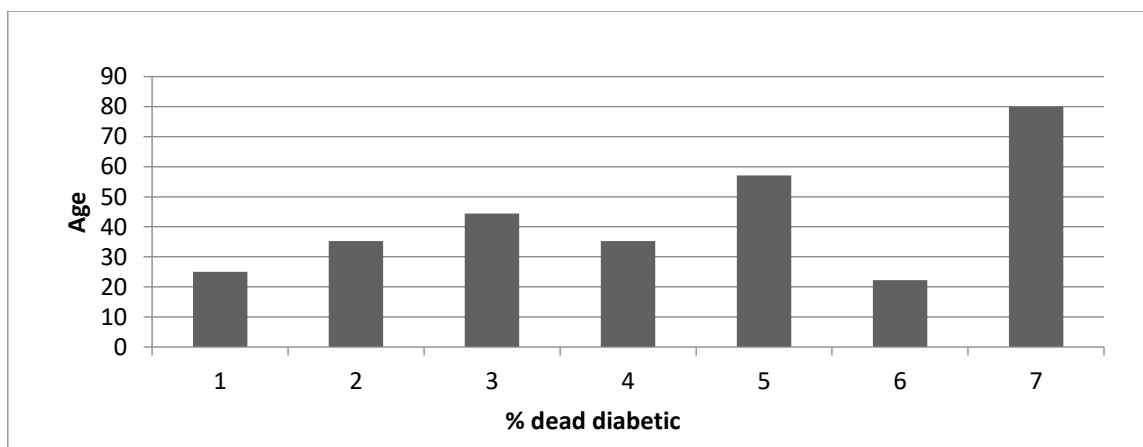


Figure 2: Percentage of dead diabetic.

Intravenous fluids, World Health Organization guidelines recommend that patients with COVID-19 in respiratory failure should be treated cautiously with intravenous fluids, especially in settings with limited availability of mechanical ventilation Hydroxychloroquine (HCQ) Chloroquine, a widely used anti-malarial has been reported as a potential broad-spectrum antiviral drug [16,17] Chloroquine blocks viral infections by increasing endosomal

pH which then interferes with virus/cell fusion. This drug also interferes with the glycosylation of cellular receptors for SARS-CoV and hence decreases virus-cell binding [18] Zinc, as an important micronutrient, plays a key role in macronutrient metabolism as well as appetite control [19] In addition, zinc is involved in synthesis, storage, release, and action of insulin [20,21] and its deficiency is associated with insulin resistance, impaired glucose tolerance and obesity [22,23].

Conclusion

Corona patient with chronic diseases, especially diabetes, the mortality percentage highly affected with general health status of the patients. The exhausted body and weak immunity system in patients of chronic diseases share the responsibility with the invading viruses of the escalating mortality rate.

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