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ORIGINAL ARTICLE

Serum level estimation of some biomarkers in diabetic and non-diabetic COVID-19 infected patients

Muhammad Usman Faryad Khan[1] · Baida Rihan Ali[2] · Husham Qassim Mohammed[3] · Hayder Mohammed Thyab Al-Shammari[4] · Abduladheem Turki Jalil[5,12] · Nada Khazal Kadhim Hindi[6] · Wanich Suksatan[7] · Balsam Qubais Saeed[8] · Rasha Fadhel Obaid[9] · Marwan Mahmood Saleh[10] · Mustafa M. Kadhim[11]

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Abstract
Diabetes, hypertension, and cardiovascular disease all raise the risk of hospitalization and mortality in individuals infected with coronavirus disease 2019 (COVID-19). Higher levels of flogosis mediators such as TNF, C-reactive protein (CRP), IL-1, IL-6, leptin, and resistin, as well as increased levels of TNF, C-reactive protein (CRP), IL-1, IL-6, leptin, and resistin, define diabetes. The goal of this study is to evaluate the levels of D-dimer, total serum bilirubin (TSB), glutamic-oxaloacetic transaminase (GOT), glutamic pyruvic transaminase (GPT), and CRP in diabetic patients with COVID-19 infection to COVID-19 patients without diabetes. Blood samples were collected from individuals with diabetes who had COVID-19 and non-diabetic COVID patients as control. Moreover, D-dimer and CRP were evaluated by using Min Vidus and Latx, respectively, whereas AccEnT 200 system was used to measure the serum level of TSB, GPT, and GOT in the hematology lab. Also demonstrated that the average serum concentration of D-dimer, GOT and CRP was high in diabetic COVID-19-infected patients (980.66 ng/mL, 67.71 U/L, and 27.06 mg/L, respectively) compared with non-diabetic COVID-19-infected patients (791.17 ng/mL, 54.023 U/L and 20.11 mg/L, respectively) ($p < 0.05$), while the situation was inverse for the average concentration of TSB and GTP when their average concentrations were low in diabetic COVID-19-infected patients (12.89 Mmol/L and 59.79 U/L, respectively) ($p > 0.05$). Moreover, the cut-off values for serum D-dimer, TSB, GPT, GOT, and CRP of COVID-19-infected diabetic patients were ≥ 6500 ng/mL, ≥ 350 Mmol/L, ≥ 133 U/L mg/L, ≥ 150 U/L, and ≥ 15.22 mg/L, respectively, represented a perfect test for predicting COVID-19-infected diabetic patients with 100% sensitivity and specificity. In conclusion, serum D-dimer, TSB, GPT, GOT and CRP increased in diabetic COVID-19-infected patients compared to non-diabetic COVID-19 patients and the D-dimer concentration also increases. TSB and CRP were more pronounced among diabetic patients with corona, while liver enzyme concentrations were decreased.

Keywords Diabetic · COVID-19 · D-dimer · TSB · GPT · GOT · CRP

Introduction

The present global pandemic of COVID-19 is the primary reason behind the increase in the number mortalities (World Health Organization 2020a; Lu et al. 2020). The severe acute respiratory syndrome (SARS-CoV-2) called (COVID-19), which first appeared in Wuhan, China in December 2019, caused significant fatalities (World Health Organization 2020a; Lu et al. 2020). Cough, shortness of breath, and fever are the most prevalent medical signs (Huang et al. 2020), as are gastrointestinal symptoms such as nausea, vomiting, abdominal pain, increased total serum bilirubin levels, and elevated liver enzymes like GOT and GPT (Huang et al. 2020; Cheung et al. 2020). The significance of numerous symptoms, comorbidities, inflammation, and hypercoagulability indicators in disease progression and mortality in COVID-19 patients is becoming clearer (Saleh et al. 2020; Moghadasi et al. 2021; Jalil et al. 2020, 2021a, b; Dilfy et al. 2020; Marofi et al. 2021a; Widjaja et al. 2021; Turki Jalil et al. 2021; Sarjito et al. 2021; Jalil 2020). Diabetes, one of the main causes of morbidity, has been found to have a high

✉ Abduladheem Turki Jalil
abedalazeem799@gmail.com

Extended author information available on the last page of the article

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