Evaluation of Platelet Function in COVID-19 Patients with Disseminated Intravascular Coagulation

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ABSTRACT

Introduction: Diffuse intravascular coagulation (DIC) is the pathological activation of the coagulation system in a diffuse form in various body vessels and a standard clinical disorder in patients hospitalized in the intensive care unit. This study aimed to investigate the platelet function in COVID-19 patients with DIC.

Methods and Materials: In this case-control study, 23 patients with COVID-19 who were involved in DIC and 25 healthy individuals were recruited after obtaining written consent. Platelet aggregation and platelet adhesion were measured by turbidometric and ELISA methods, respectively. The hemostasis status of the patients was evaluated by prothrombin time and partial thromboplastin time tests. The D-dimer level was also measured to assess the fibrinolytic system.

Results: The mean age of the studied patients was 58.2 years, and the healthy group was 56.4 years. The level of fibrinolysis in patients was significantly higher than that in healthy volunteers. In the inflammatory panel, there was a significant increase in ferritin in the patients compared to the healthy individuals. The percentage of platelet adhesion and platelet aggregation in response to collagen, ristocetin, ADP, and ionophore A23187 significantly increased in the patient group compared to the healthy individuals.

Conclusion and Discussion: Platelet aggregation and adhesion changes in COVID-19 patients with DIC were significant. Therefore, measuring these variables can help determine the prognosis of critically ill COVID-19 patients.

Keywords: Blood platelet, COVID-19, Disseminated intravascular coagulation

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