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Total antioxidant capacity (TAC) as a marker of severity of COVID-19 infection; possible prognostic and therapeutic clinical application

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The pathogenesis of SARS-CoV-2 infection, the causative pathogen of the known COVID-19 pandemic is not well clarified. In this regard oxidative stress is one of the topics that need to be investigated. Therefore, the present research was performed to explore the relationship between the oxidant/antioxidant system and COVID-19 exacerbation. Sera from 120 patients with COVID-19 infection were collected; besides sera from 60 healthy volunteers were collected as the control group. The patient group consisted of 60 cases with mild disease and 60 severely ill patients. Serum levels of total antioxidant capacity (TAC) and nitric oxide (NO) as well as serum activities of the two main anti-oxidant defense enzymes, superoxide dismutase (SOD) and catalase (CAT), were measured by commercial kits. TAC levels were considerably lower in patients compared with healthy individuals ($P<0.05$) and also between patients with mild and severe diseases ($P<0.05$). A rather decreasing trend was also found in NO concentration as well as SOD and CAT activity, though, the observed differences were not statistically significant ($P>0.05$). These findings suggest that COVID-19 patients may be susceptible to depleted total anti-oxidant capacity. Moreover, showing such variation in blood samples of infected individuals could be considered as a predictive marker of COVID-19 severity.

Biography:

Neda Yaghoubi has completed his MSC at the age of 38 years from Mashhad University of Medical Sciences and at the moment she is studying clinical biochemistry to get a PhD degree. She has published 3 papers in reputed journals and is doing several pieces of research on COVID-19 pathogenesis.

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