



## Correlation between Proinflammatory cytokines and severity of COVID-19 within Palestinian Patients.

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### **Abstract**

**Background:** COVID-19 was characterized by cytokine storm and endothelial dysfunction in severely ill patients. Severity of infection was correlated with ethnicity.

**Objectives:** This study aimed to assess the correlation of proinflammatory cytokine serum level and COVID-19 symptoms in the Palestinian population.

**Methods:** a cross-sectional study was used to assess the proinflammatory cytokine serum level with correlation of COVID-19 severity. Serum samples of 27 non-hospitalized patients (NHP) and 63 hospitalized patients (HP) SARS-CoV-2 infected patients, were tested for total antibodies, IL-6, TNF- $\alpha$ , IFN- $\gamma$  and IL-1 $\beta$  using the ELISA test.

**Results:** Most common symptoms within patients were Joint pain, cough, and fever (73.3%, 69.7% and 50% respectively). Serum total antibodies (IGs) levels in NHP were higher than HP ((44.7 COI and 9.2 COI). TNF- $\alpha$  and IL-6 were lower in NHP compared to HP ( $48 \pm 17.9$  pg/ml,  $193.3 \pm 350.5$  pg/ml respectively). On the other hand, IFN- $\gamma$ , in NHP ( $1 \pm 2$  IU/ml) was significantly higher than HP ( $0.4 \pm 0.26$  IU/ml). IL-1 $\beta$  was slightly lower in HP ( $8.8 \pm 13.6$  pg/ml) compared to NHP ( $12.5 \pm 24.5$  pg/ml). Common mild symptoms of COVID-10 were negatively associated with proinflammatory cytokines serum level.

**Conclusion:** As it with other populations worldwide, IL-6 and TNF-  $\alpha$  are playing a major role in the complications of SARS-CoV-2 infection. Monitoring

the two cytokines is crucial for management and treatment of complicated consequence of COVID-19.

**Keywords:** COVID-19; total antibodies; proinflammatory cytokines; SARS-CoV-2.