

Evaluation of endothelial dysfunction in COVID-19 with flow-mediated dilatation

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Abstract

Aim: It is a well-known fact that inflammation plays a crucial role in many diseases including COVID-19. Using flow-mediated dilatation (FMD), we aimed to compare the effects of inflammation on endothelial dysfunction in patients with COVID-19 and the control group. **Materials and Methods:** The present study was conducted on a total of 161 participants, of whom 80 were diagnosed with COVID-19 within the last 6 months (comprising 48 women and 32 men with a mean age of 32.10 ± 5.87 years) and 81 were healthy controls (comprising 45 women and 36 men with a mean age of 30.51 ± 7.33 years). We analyzed the findings of transthoracic echocardiography and FMD in all participants. **Results:** Except for FMD, there was no statistically significant difference in echocardiographic parameters. (9.52 ± 5.98 vs. 10.53 ± 6.31 , $p=0.010$). In multivariate analysis with the forward stepwise model, FMD was significantly different in the control group compared to the COVID group (1.086 ($1.026 - 1.149$), $p=0.04$). Spearman's correlation test indicated that FMD ($r=0.27$, $p=0.006$) had a significantly positive correlation with the presence of COVID. A receiver operating curve analysis revealed that an FMD value of $<10.62\%$ was capable of predicting the presence of COVID with a sensitivity and specificity of 64% and 59%, respectively (AUC=0.625, 95% CI, 0.538 - 0.711). **Conclusion:** The value of FMD decreased significantly in COVID-19 patients compared to the healthy subjects, which may be an early marker for COVID-19 induced endothelial dysfunction. **KEYWORDS:** COVID-19, endothelial dysfunction, flow-mediated dilatation (FMD)

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