

# 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  $32.10 \pm 5.87$  years) and 81 were healthy controls (comprising 45 women and 36 men with a mean age of  $30.51 \pm 7.33$  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. ( $9.52 \pm 5.98$  vs.  $10.53 \pm 6.31$ ,  $p=0.010$ ). 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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