

Tesis

**KORELASI MEAN PLATELET VOLUME DENGAN D-DIMER
PADA PASIEN *CORONAVIRUS DISEASE 2019***



**PROGRAM STUDI PATOLOGI KLINIS PROGRAM SPESIALIS I
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KORELASI *MEAN PLATELET VOLUME* DENGAN D-DIMER PADA PASIEN *CORONAVIRUS DISEASE 2019*

ABSTRAK

Latar Belakang: Virus SARS-CoV-2 berikatan dengan ACE2 dan menyebabkan kerusakan endotel. Kerusakan endotel menyebabkan keluarnya *tissue factor* dan memicu aktifnya kaskade koagulasi, yang ditandai dengan peningkatan D-Dimer. Peningkatan D-Dimer menggambarkan aktivasi koagulasi dan fibrinolisis. Kerusakan endotel menimbulkan adhesi dan agregasi trombosit. Pemakaian trombosit meningkat sehingga memicu produksi trombosit di sumsum tulang dan pelepasan trombosit imatur di sirkulasi, yang ditandai dengan peningkatan MPV. Parameter MPV tersedia di alat hematologi *analyzer* pada berbagai fasilitas kesehatan, rutin dilakukan dan biaya murah. Penelitian ini bertujuan mengetahui korelasi MPV dengan D-Dimer pada pasien COVID-19.

Metode: Penelitian analitik dengan rancangan potong lintang dilakukan terhadap 88 subjek penelitian berusia 18-50 tahun dari pasien COVID-19 tanpa komorbid yang dirawat di RSUP Dr. M. Djamil mulai Mei - September 2021. Pemeriksaan MPV menggunakan metode *impedance* dan D-Dimer metode ELISA. Data dianalisis dengan uji korelasi Pearson, bermakna jika didapatkan nilai $p < 0,05$.

Hasil: Rerata usia subjek penelitian 33,47 tahun, rentang 18-50 tahun. Subjek penelitian terbanyak perempuan, 53 orang (62,4%). Rerata MPV 10,36 (0,87) fL. Rerata D-Dimer 728,51 (500,99) ng/mL. Analisis korelasi menunjukkan *mean platelet volume* memiliki korelasi positif lemah dengan D-Dimer ($r=0,269$, $p=0,013$).

Simpulan: Penelitian ini memperlihatkan peningkatan kadar MPV dan D-Dimer pada pasien COVID-19. Terdapat korelasi antara MPV dengan D-Dimer pada pasien COVID-19 dengan kekuatan korelasi lemah.

Kata Kunci : *mean platelet volume* (MPV), D-Dimer, COVID-19

CORRELATION OF MEAN PLATELET VOLUME WITH D-DIMER IN PATIENTS WITH CORONAVIRUS DISEASE 2019

ABSTRACT

Background: SARS-CoV-2 binds to ACE2 and causes endothelial injury. Endothelial injury causes the release of tissue factor and triggers coagulation cascade activation, which is characterized by increase of D-Dimer level. The increase of D-Dimer level reflects activation of coagulation and fibrinolysis. Endothelial injury leads to platelet adhesion and aggregation. Platelet consumption increases so that it triggers platelet production in bone marrow and the release of immature platelets in circulation, which is characterized by an increase of MPV level. MPV parameter is available in hematology analyzers at various health facilities, routinely performed and low cost. This study aimed to determine the correlation between MPV and D-Dimer in COVID-19 patients.

Methods: This study was an analytical study with a cross-sectional design conducted on 88 subjects aged 18-50 years from COVID-19 patients without comorbidities who were admitted at Dr. M. Djamil Hospital from May - September 2021. MPV level was measured using impedance method and D-Dimer level using ELISA method. Data were analyzed using Pearson correlation test, significant if $p < 0.05$.

Results: Mean age was 33.47 years, range of 18-50 years. Most of subjects were women, 53 people (62.4%). Mean MPV level was 10.36 (0.87) fL. Mean of D-Dimer level was 728.51 (500.99) ng/mL. Correlation analysis showed that mean platelet volume had weak positive correlation with D-Dimer ($r=0,269$, $p=0,013$).

Conclusion: This study showed an increase in MPV and D-Dimer levels in COVID-19 patients. There is a correlation between MPV and D-Dimer in COVID-19 patients with weak correlation strength.

Keywords: mean platelet volume (MPV), D-Dimer, COVID-19