Perbedaan Rerata Agregasi Trombosit, Kadar Pselektin, dan Anti-Platelet Factor 4 Serum pada Berbagai Derajat COVID-19 = Mean Difference of P-selectin, anti PF4 in Serum, and Thrombocyte Aggregation in COVID-19

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Abstrak

Latar Belakang COVID-19 ditetapkan sebagai pandemi sejak tahun 2020. Berbagai terapi telah dikembangkan akan tetapi terdapat laporan kejadian trombosis pasca COVID-19. Diduga salah satu mekanisme yang berperan adalah aktivasi trombosit oleh antibodi.
Hal tersebut dikemukakan akibat adanya temuan manifestasi mirip Heparin-Inducued Thrombocytopenia (HIT) pada COVID-19. HIT terjadi akibat adanya antibodi antiPF4/heparin yang berikatan dengan reseptor FcIIR di trombosit. Terdapat banyak penanda aktivasi trombosit, salah satunya P-selektin.
Tujuan. Mengetahui perbedaan rerata kadar antiPF4, P-selektin serum, serta agregasi trombosit antar derajat COVID-19.
Metode. Penelitian ini menggunakan sampel penelitian sebelumnya Hubungan Kadar 25-Hydroxy Vitamin D dengan Luaran Pasien Terkonfirmasi COVID-19 di Rumah Sakit Cipto Mangunkusumo (RSCM) dan Rumah Sakit Wisma Atlit pada Oktober 2021 sampai Januari 2022. Sampel serum tersebut disimpan di lab RSCM Kencana dan dilakukan simple random sampling. Pemeriksaan kadar P-selektin dan antiPF4 dilakukan dengan metode ELISA di Lab Diagnos, sedangkan agregasi trombosit pasca paparan serum di Lab RSCM.
Hasil. Dilakukan analisis pada 160 sampel. Berdasarkan severitas terdapat 21 orang termasuk COVID-19 berat/kritis dan sisanya ringan/sedang. Komorbiditas, penyakit jantung, ginjal kronik, DM tipe 2, dan serebrovaskular secara bermakna lebih banyak pada kelompok berat kritis. Kadar P-selektin secara bermakna lebih tinggi pada kelompok berat kritis (median 43791,79 vs. 39112,3 pg/ml). Selain itu juga didapatkan agregasi yang lebih tinggi pada kelompok berat-kritis dengan agonis ADP 10 dan 5 uM (median masing-masing 32,8 vs 13,8 dan 28,5 vs 11,1 persen). Tidak terdapat perbedaan bermakna antiPF4 antar derajat COVID-19.
Kesimpulan. Terdapat perbedaan bermakna kadar P-selektin dan agregasi trombosit antar derajat COVID-19.
.....Background. COVID-19 became pandemic since 2020. While its treatment was being developed there were reports of thromboses event after COVID-19. One mechanism suggested was platelet activation due to antibody because of observation similar manifestation with heparin-induced thrombocytopenia in COVID-19. Main culprit of HIT is antibody to PF4/heparin. Which bind FcIIR receptor in thrombocyte, leading to its activation. There are many markers of thrombocyte activation, one of them is P-selectin.
Objectives. Determine the mean difference of P selectin and antiPF4 levels in serum and thrombocyte aggregation between COVID-19 severity.
Methods. This study uses samples already taken before, in Association of 25-Hydroxy-Vitamin D Levels with Outcome of COVID-19 Patients research from October 2021 to January 2022. Serum was stored in -20 C degrees in RSCM Laboratory. We planned to

do a simple random sampling. P-selectin and antiPF4 measured with ELISA in Diagnos Laboratory. Thrombocyte aggregation was measured by Light Transmission Aggregometry in RSCM.
Results. A total of 160 subjects analyzed 21 of them had severe/critical COVID-19. Comorbidities, heart disease, diabetes type 2, cerebrovascular disease were significantly higher in severe/critical disease. The median of P-selectin is significantly higher in severe covid (43791,79 vs. 39112,3 pg/ml). As aggregometry we find significantly higher
aggregation in severe disease with 10 and 5 uM ADP agonist. There is no difference of antiPF4 levels between groups.
Conclusion. There is a significant difference in P-selectin level and maximal aggregation between severe and non-severe COVID-19.