

# Hubungan antara Kadar Prostaglandin E2 dengan Parameter Klinis Periodontal pada Individu Penyintas COVID-19 = Association between Prostaglandin E2 Levels and Clinical Periodontal Parameters in Former COVID-19 Patient

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## Abstrak

Latar Belakang: Penyakit periodontal merupakan penyakit inflamasi yang memengaruhi jaringan penyangga gigi. Patogen memicu sistem imun bawaan ada jaringan periodontal untuk melepaskan mediator proinflamasi dan sitokin, salah satunya yaitu Prostaglandin E2 (PGE2). Periodontitis diketahui memiliki pengaruh dua arah dengan beberapa penyakit sistemik. salah satunya COVID-19 yang disebabkan oleh virus SARS-CoV-2 yang berkaitan dengan sindrom badai sitokin. Tujuan: Penelitian ini dilakukan untuk melihat korelasi respons imun individu penyintas COVID-19 dalam hal ini mediator inflamasi PGE2 dengan kondisi jaringan periodontal berdasarkan parameter klinis periodontal yaitu BOP, PD, dan CAL. Metode: Desain penelitian potong lintang pada 38 orang subjek dengan membagi dua kelompok subjek berdasarkan riwayat COVID-19. Dilakukan pemeriksaan parameter klinis periodontal BOP, PD, CAL dan pengambilan sampel GCF untuk mengukur kadar PGE2 menggunakan metode ELISA. Analisis data dilakukan dengan SPSS 25 dan GraphPad 10.0.0 Hasil: Terdapat perbedaan kadar PGE2 ( $p < 0,05$ ) antara penyintas dan bukan penyintas COVID-19. Tidak terdapat perbedaan parameter klinis periodontal ( $p > 0,05$ ) antara penyintas dan bukan penyintas COVID-19. Terdapat hubungan linear positif ( $p < 0,05$ ;  $r > 0$ ) antara kadar PGE2 dengan PD dan BOP. Kesimpulan: Kadar PGE2 pada subjek penyintas COVID-19 diindikasikan berkorelasi positif terhadap parameter klinis periodontal PD dan BOP.

.....Background: Periodontal disease is an inflammatory condition that affects the supporting tissues of the teeth. In periodontitis, pathogens trigger the innate immune system to release proinflammatory mediators and cytokines in the periodontal tissues, one of which is Prostaglandin E2 (PGE2). Periodontitis is known to have a bidirectional relationship with several systemic diseases, one of them is COVID-19 which caused by the SARS-CoV-2 and associated with a cytokine storm syndrome. Objective: This research is conducted to examine the correlation between the immune response of individuals who have survived COVID-19, specifically the inflammatory mediator PGE2, and the condition of periodontal tissues based on clinical periodontal parameters, namely BOP, PD, and CAL. Methods: The design of this study was cross-sectional on 38 subjects by dividing two groups of subjects based on history of COVID-19. Periodontal clinical parameters BOP, PD, CAL were examined and GCF samples were taken to measure PGE2 levels using the ELISA method. Data analysis was carried out with SPSS 25 and GraphPad 10.0.0. Results: There is a significant difference in PGE2 levels ( $p < 0.05$ ) between former COVID-19 patients and non-COVID-19. No significant differences in clinical periodontal parameters ( $p > 0.05$ ) were found between two groups. A positive linear relationship ( $p < 0.05$ ;  $r > 0$ ) was observed between PGE2 levels and PD, as well as BOP. Conclusions: PGE2 levels in subjects who survived COVID-19 were indicated to be positively correlated with the periodontal clinical parameters of PD and BOP.