

# Korelasi Kadar 25-OH-D dengan Cathelicidin Serum pada Tenaga Kesehatan dengan Berat Badan Lebih dan Obesitas pada Masa Pandemi COVID-19 = Correlation of Serum 25-OH-D and Cathelicidin in Overweight and Obese Healthcare Workers during the COVID-19 Pandemic

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## Abstrak

Defisiensi vitamin D rentan terjadi pada tenaga kesehatan dan berakibat pada gangguan sintesis cathelicidin, peptida antimikrobal dengan efek proteksi terhadap virus. Studi terdahulu menunjukkan adanya korelasi positif antara 25-OH-D dengan cathelicidin, sementara data terkait pada populasi obesitas masih terbatas. Penelitian dengan desain potong lintang dilakukan di Rumah Sakit rujukan pasien COVID-19 di Jakarta dan Depok. Consecutive sampling dan randomisasi dilakukan untuk memperoleh sampel. Asupan makronutrien dan vitamin D dinilai menggunakan Food recall 24 jam dan semi kuantitatif Food Frequency Questionnaire (SQ-FFQ). Kadar 25-OH-D dan cathelicidin serum dianalisa dengan metode Chemiluminescence Immunoassay (CLIA) dan Enzyme Linked Immunosorbent Assay (ELISA). Uji Mann Whitney dan Kruskal Wallis dilakukan untuk menilai perbedaan rerata kadar cathelicidin, sementara korelasi 25-OH-D dan cathelicidin serum dinilai dengan regresi linear setelah penyesuaian terhadap Indeks Massa Tubuh (IMT). 80 subjek usia 22 hingga 47 tahun dianalisa, dengan 70% subjek memiliki status gizi obesitas dan 30% berat badan lebih. 93.7% subjek belum mencukupi kebutuhan asupan harian Vitamin D dengan median asupan Vitamin D 2.8 µg per hari. Median kadar 25-OH-D dan cathelicidin subjek 14.3 ng/ml dan 211.6 ng/ml. 85% subjek tergolong defisiensi vitamin D dan subjek dengan obesitas II memiliki kadar cathelicidin yang lebih tinggi. Tidak didapatkan korelasi antara kadar 25-OH-D dengan cathelicidin serum pada subjek tenaga kesehatan dengan berat badan lebih dan obesitas ( $p = 0.942$ ,  $\delta = 0.077$ , 95% CI -2.182-2.029). Hasil penelitian ini membutuhkan analisa lebih lanjut mengingat peningkatan kadar cathelicidin dapat dipengaruhi oleh variabel perancu sehingga efek protektif dari cathelicidin belum dapat disimpulkan.

Vitamin D deficiency is prevalent among healthcare workers, resulting in impairment of cathelicidin, an antimicrobial peptide with antiviral properties. Former studies show a positive correlation between 25-OH-D and cathelicidin, yet data on the obese population is still scarce. We conducted a cross-sectional study in the COVID-19 referral hospitals in Jakarta and Depok. Samples were collected using consecutive sampling followed by randomization. A repeated 24-hour food recall and a semi-quantitative food frequency questionnaire (SQ-FFQ) were used to estimate intake. The Enzyme-Linked Immunosorbent Assay (ELISA) and Chemiluminescence Immunoassay (CLIA) were used to measure serum cathelicidin and 25-OH-D. Mann Whitney and Kruskal Wallis analyses were done to assess the mean difference of cathelicidin, and linear regression adjusted for body mass index was done to assess the correlation between 25-OH-D and cathelicidin. 80 subjects aged 22 to 47 years were included, where 70% of the subjects were categorized as obese and 30% were overweight. 93.7% of the subjects did not meet their daily intake of vitamin D

requirements, with a median intake of vitamin D of 2.8 µg daily. The subject's median serum of 25-OH-D and cathelicidin were 14.3 ng/ml and 211.6 ng/ml, respectively. 85% of the subjects were classified as vitamin D deficient, and subjects with class II obesity had significantly higher levels of cathelicidin. Serum 25-OH-D and cathelicidin did not correlate in overweight and obese healthcare workers (p 0.942 ð-0.077 95% CI -2.182-2.029). Further research is essential to better understand the findings of this study since the protective effects of cathelicidin cannot be determined because confounding factors may cause cathelicidin levels to rise.