

ABSTRACT

Correlation between 25-hydroxyvitamin D Serum Level and Severity of Pulmonary Tuberculosis

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Background

Tuberculosis is one of global health problems which caused morbidity and mortality in worldwide. The association between vitamin D and pulmonary tuberculosis may be explained by an evidence for immunoregulatory role of the vitamin. The aim of this study was to analyze the correlation between serum 25-hydroxyvitamin D levels with the severity of pulmonary tuberculosis based on TB Bandim score.

Methods

This study was an observational analytic conducted at Dr Soetomo General Hospital and Airlangga University General Hospital, Surabaya. Baseline data of patients, AFB sputum, TB Bandim score, and 25-hydroxyvitamin D serum were examined. Serum level 25-hydroxyvitamin D of 47 pulmonary TB patients included in this study were measured using ELISA method. Data were analyzed to see the correlation between 25-hydroxyvitamin D serum levels and degree of severity of pulmonary tuberculosis with *Spearman rho* test.

Results

The mean serum 25-hydroxyvitamin D level of the subject was 16.58 ± 10.8 ng/ml and female subjects were significantly lower than man (p-value =0,037). Vitamin D deficiency was found in 12 subjects (25,5%). Severity grade III based on TB Bandim score was found in 26 subjects (55,3%). Serum 25-hydroxyvitamin D level showed correlation with BMI ($r = 0.536$, p-value = 0.000). Degree of positivity AFB sputum was correlated with degree of severity of pulmonary tuberculosis ($r = 0,302$, p-value 0,039). Statistical analysis showed a strong negative correlation between serum 25-hydroxyvitamin D level and degree of severity of pulmonary tuberculosis ($r = -0,653$ p-value =0.000).

Conclusion

Serum levels of 25-hydroxyvitamin D serum were significantly correlated with the degree of severity of pulmonary tuberculosis based on TB Bandim score.

Keywords

Pulmonary TB, serum 25-hydroxyvitamin D level, severity of TB, TB Bandim score

ABSTRAK

Hubungan antara Kadar 25-Hydroxyvitamin D Serum dan Derajat Keparahan Tuberkulosis Paru

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Latar Belakang

Tuberkulosis adalah salah satu masalah kesehatan global yang menjadi penyebab mortalitas dan morbiditas di seluruh dunia. Hubungan antara vitamin D dan tuberkulosis paru dapat dijelaskan melalui perannya sebagai imunoregulator. Tujuan penelitian ini adalah untuk menganalisis hubungan kadar 25-hydroxyvitamin D serum dengan derajat keparahan tuberkulosis paru yang dinilai berdasarkan skor TB Bandim.

Metode

Penelitian ini adalah analitik observasional dengan rancangan potong lintang yang dilakukan di Rumah Sakit Umum Daerah dr Soetomo dan Rumah Sakit Universitas Airlangga, Surabaya. Data dasar, BTA dahak, skor TB Bandim, dan kadar 25-hydroxyvitamin D serum tiap subjek diperiksa. Kadar 25-hydroxyvitamin D serum serum 47 subjek yang dimasukkan dalam penelitian ini diukur dengan metode ELISA. Analisa mengenai hubungan kadar 25-hydroxyvitamin D serum serum dan derajat keparahan tuberkulosis paru berdasarkan skor TB Bandim diukur dengan uji *Spearmanrho*.

Hasil

Rerata kadar 25-hydroxyvitamin D serum subyek adalah 16.58 ± 10.8 ng/ml dan pada perempuan lebih rendah dibandingkan laki-laki (nilai $p = 0,037$). Defisiensi vitamin D dijumpai pada 12 subyek (25,5%). Keparahan TB paru derajat III dijumpai pada 26 subyek (55,3%). Kadar 25-hydroxyvitamin D serum berkorelasi dengan IMT ($r=0.539$, nilai $p 0,000$). Kepositifan BTA berkorelasi dengan derajat keparahan TB paru ($r= 0,302$, nilai $p 0,039$). Analisis statistik menunjukkan terdapat korelasi negatif kuat antara kadar 25-hydroxyvitamin D serum dan derajat keparahan TB paru ($r= -0,653$, nilai $p 0,000$)

Kesimpulan

Kadar 25-hydroxyvitamin D serum berkorelasi secara signifikan dengan derajat keparahan TB paru berdasarkan skor TB Bandim.

Kata kunci

TB paru, Kadar 25-hydroxyvitamin D serum, derajat keparahan, skor TB Bandim.