

## ABSTRACT

### **Correlation between Serum PGE<sub>2</sub> Level and Sputum AFB Positivity Degree of New and Relapse Cases of Pulmonary TB**

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#### **Background**

TB still remain as a global health problem. Apoptosis of Mtb infected macrophages are triggered by PGE<sub>2</sub>. Apoptosis suppresses the growth of Mtb, which is shown in sputum AFB smear as a marker of the number of Mtb. The aim of this study is to analyze the correlation between serum PGE<sub>2</sub> levels and the degree of sputum AFB positivity in new and relapsed Pulmonary TB patients.

#### **Methods**

This observational analytic study conducted at Dr. Soetomo General Hospital. The PGE<sub>2</sub> serum level of 62 patients diagnosed as new and relapse cases of pulmonary TB with positive sputum AFB were measured. The data results were analyzed using the Chi-square method and the correlation coefficients were calculated with Spearman test.

#### **Results**

Of 62 sample recruited, 9 (14.5%) patients have low serum PGE<sub>2</sub> levels, 39 (62.9%) were normal and 14 (22.6%) were high. 26 (41.9%) patients have a low degree of sputum positivity AFB and 36 (58.1%) were high. The median value of serum PGE<sub>2</sub> levels is 216.95 pg / ml. The results of statistical analysis showed a weak negative correlation between serum PGE<sub>2</sub> levels and the degree of sputum AFB positivity, which were not statistically significant ( $r = -0.015$ ,  $p\text{-value} = 0.790$ ).

#### **Conclusion**

There were weak negative correlation between serum PGE<sub>2</sub> levels and the degree of sputum AFB positivity which were not statistically significant. This research can be used as a basis for further research in understanding the role of the immune system against Mtb.

#### **Keywords**

Pulmonary TB, PGE<sub>2</sub> serum level, sputum AFB positivity.

## ABSTRAK

**Hubungan antara Kadar PGE<sub>2</sub> Serum dan Derajat Kepositifan BTA Dahak Pasien TB Paru Kasus Baru dan Kambuh**

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**Latar Belakang**

TB masih menjadi permasalahan kesehatan global. Apoptosis makrofag yang terinfeksi Mtb dipicu oleh PGE<sub>2</sub>. Apoptosis menekan pertumbuhan kuman Mtb, yang akan tampak pada hasil BTA dahak yang merupakan penanda jumlah kuman Mtb. Penelitian ini bertujuan untuk mengetahui hubungan antara kadar PGE<sub>2</sub> serum dan derajat kepositifan BTA dahak pasien TB paru kasus baru dan kambuh.

**Metode**

Penelitian ini merupakan penelitian analitik observasional yang dilakukan di RSUD Dr. Soetomo. Dilakukan pengukuran kadar PGE<sub>2</sub> serum pada 62 pasien TB paru kasus baru dan kambuh dengan hasil BTA dahak positif. Data dianalisis dengan uji statistik menggunakan metode *Chi-square* dan dihitung koefisien korelasi dengan uji korelasi *Spearman*.

**Hasil**

Dari 62 sampel yang didapat, 9 (14,5%) pasien memiliki kadar PGE<sub>2</sub> serum rendah, 39 (62,9%) normal dan 14 (22,6%) tinggi. Nilai median kadar PGE<sub>2</sub> serum sebesar 216,95 pg/ml. 26 (41,9%) pasien memiliki derajat kepositifan BTA dahak rendah, 36 (58,1%) memiliki derajat kepositifan tinggi. Hasil analisis statistik menunjukkan terdapat hubungan negatif lemah antara kadar PGE<sub>2</sub> serum dan derajat kepositifan BTA dahak yang kurang bermakna secara statistik ( $r = -0,015$ ,  $p\text{-value} = 0,79$ ).

**Kesimpulan**

Terdapat hubungan negatif lemah antara kadar PGE<sub>2</sub> serum dan derajat kepositifan BTA dahak namun tidak bermakna secara statistik. Penelitian ini dapat digunakan sebagai dasar penelitian lebih lanjut dalam memahami peran sistem imun terhadap kuman Mtb.

**Kata kunci**

TB Paru, kadar PGE<sub>2</sub> serum, kepositifan BTA dahak.