

**RELATIONS BETWEEN INTERLEUKIN-6 LEVEL WITH
THE NUMBER OF THROMBOCYTE ON CHILDREN
WITH DENGUE HEMORRHAGIC FEVER IN
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ABSTRACT

Dengue Hemorrhagic Fever still become public health problem in Indonesia nowadays. Immune respond which happened during infection of dengue virus involving various cytokines and one of them is interleukin-6 (IL-6). The activity of IL-6 lead to the proliferation and differentiation of B cells to produce antibodies, including antibodies against platelets. Antiplatelet antibody bond with platelets will activate complement and enhance phagocytosis of macrophages, resulting in a decrease in platelet count (thrombocytopenia). Thrombocytopenia also occurs due to damage to the endothelial cells that lead to increased platelet usage. In addition, dengue virus infection in the bone marrow will cause the reduction of platelets production. The aim of this study is to prove the relationship of IL-6 with the number of platelets in children with DHF.

The study was conducted through Cross Sectional Design. Thirty samples of children with DHF was obtained from pediatric inpatient unit in Dr. M. Djamil hospital Padang who meet the criteria for inclusion and exclusion. Levels of IL-6 checked with *ECLIA* method and the platelet number was calculated by the *Flowsitometri* method. Normality of the data was tested with *Kolmogorov-Smirnov test*. Data analysis using Pearson correlation test. A finalists is data using Pearson correlation test. Results is significant if $p < 0.05$

Results of this study in pediatric DHF patients obtained the lowest levels of IL-6 was 6,22 pg/mL and the highest was 54,93 pg / mL ($20,42 \pm 13,76$ pg/mL) and the lowest platelet number was $12.000/\text{mm}^3$ and the highest was $94.000/\text{mm}^3$ ($54.896,55 \pm 26.023,81 / \text{mm}^3$). There was a moderate negative correlation between the levels of IL-6 with the platelets number ($r = -0,270$) and significant value $p = 0,156$ ($p \geq 0,05$)

Conclusion: There was not a relationship between the levels of IL-6 with the number of platelets in children with DHF.

Keywords: Dengue Hemorrhagic Fever, Interleukin-6, Thrombocytes

HUBUNGAN KADAR INTERLEUKIN 6 DENGAN JUMLAH TROMBOSIT PADA ANAK DEMAM BERDARAH DENGUE DI RUMAH SAKIT Dr. M. DJAMIL PADANG

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ABSTRAK

Demam Berdarah Dengue (DBD) hingga saat ini masih menjadi masalah kesehatan masyarakat di Indonesia. Repons imun yang terjadi selama infeksi virus dengue melibatkan berbagai sitokin, salah satunya adalah interleukin-6 (IL-6). Aktivitas IL-6 menyebabkan proliferasi dan diferensiasi sel B dalam memproduksi antibodi, termasuk antibodi terhadap trombosit. Ikatan antibodi antitrombosit dengan trombosit akan mengaktivasi komplemen dan meningkatkan fagositosis makrofag, sehingga terjadi penurunan jumlah trombosit (trombositopenia). Trombositopenia juga terjadi karena kerusakan sel endotel yang menyebabkan pemakain trombosit meningkat. Selain itu, infeksi virus dengue di sumsum tulang akan menyebabkan penurunan produksi trombosit. Penelitian ini bertujuan untuk membuktikan hubungan kadar IL-6 dengan jumlah trombosit pada anak DBD.

Penelitian dilakukan secara *cross sectional*. Sampel sebanyak 30 pasien anak DBD yang dirawat di Instalasi rawat inap Ilmu Kesehatan Anak Rumah Sakit Dr. M. Djamil Padang yang memenuhi kriteria inklusi dan eksklusi. Kadar IL-6 diperiksa dengan metode *ECLIA* dan jumlah trombosit dihitung dengan metode *Flowsitometri*. Normalitas data diuji dengan *Kolmogorov-Smirnov Test*. Analisis data menggunakan uji korelasi Pearson. Hasil bermakna jika $p < 0,05$.

Hasil penelitian pada pasien anak DBD didapat kadar terendah IL-6 6,22 pg/mL dan tertinggi 54,93 pg/mL ($20,42 \pm 13,76$ pg/ml) dan jumlah trombosit terendah $12.000/\text{mm}^3$ dan tertinggi $94.000/\text{mm}^3$ ($54.896,55 \pm 26.023,81$ / mm^3). Terdapat korelasi negatif derajat sedang antara kadar IL-6 dengan jumlah trombosit ($r = -0,270$) dan nilai signifikansi $p = 0,156$ ($p \geq 0,05$).

Kesimpulan: tidak terdapat hubungan antara kadar IL-6 dengan jumlah trombosit pada anak DBD.

Kata Kunci : Demam Berdarah Dengue, Interleukin-6, Trombosit.