Indeks Efusi Pleura Sebagai Prediktor Sindrom Syok Dengue Pada Anak di RSUD Dr. Moewardi Surakarta

Pleural Effusion Index as A Predictor for Dengue Shock Syndrome in Children at Dr. Moewardi Hospital Surakarta

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ABSTRACT

**Background:** The extent of plasma effusion in dengue hemorrhagic fever (DHF) can be identified by pleural effusion index (PEI) in the right lateral decubitus chest X photo. The PEI is expected to help predict the course of DHF. This study aimed to estimate the PEI values that can be used to predict dengue shock syndrome (DSS) in children.

**Methods:** This was a prospective cohort study conducted in the pediatric ward at Dr. Moewardi Hospital in Surakarta from February to March 2009. The study involved 50 study subjects. Complete blood examination, rapid anti-dengue serology test, right lateral decubitus X photo, and PEI, were performed. The cutoff point was determined by receiver operating characteristic curve (ROC). Sensitivity, specificity, likelihood ratios, positive and negative predictive values, relative risk, and odds ratio were calculated.

**Results:** The data showed DSS prevalence of 30%, and pleural effusion prevalence of 60%. Using the ROC, the PEI cutoff point of >9% resulted in AUC 0.7 (CI 95% 0.6 to 0.8, \( p = 0.002 \)), sensitivity 80% (CI 95% 51.9 to 95.4), specificity 60% (CI 95% 42.1 to 76.1), positive likelihood ratio 2 (CI 95% 1.4 to 2.9), positive predictive value 46.2% (CI 95% 26.6 to 66.6), and negative predictive value 87.5% (CI 95% 66.4 to 97.1). The association between PEI >9% and DSS was statistically significant. Using logistic regression to control for confounding factors resulted in an OR for PEI >9% of 6.0 (CI 95% 1.4 to 25.2, \( p = 0.014 \)) relative to PEI = 9%.

**Conclusion:** PEI can be used to predict the occurrence of DSS. PEI >9% has higher risk of DSS than PEI = 9%. Jurnal Kedokteran Indonesia: 1 (1): 32-39

**Keywords:** pleural effusion index, right lateral decubitus X photo, dengue shock syndrome, dengue hemorrhagic fever