Hubungan antara Neutropenia dan Mortalitas pada Neonatus dengan Sepsis, dengan Mengendalikan Pengaruh Umur Gestasi dan Berat Badan lahir

The Relationship between Neutropenia and Mortality in Neonatus with Sepsis, While Controlling for the Effect of Gestational Age and Birth Weight

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ABSTRACT

Background. Sepsis in neonates (newborns) remains a major cause of public health concern. Sepsis may cause neutropenia due to hematological system dysfunction, which suggests poor prognosis. Decreased neutrophil function will increase mortality in neonates. In addition, the health care cost implication of residual symptoms in children who survive is quite high. This study aimed to estimate the association between neutropenia and mortality in neonates with sepsis.

Methods. A prospective cohort study was conducted at Dr. Moewardi Hospital, Surakarta. A sample of 85 neonates was selected by consecutive sampling, i.e. all of the newborns aged <1 month at the Pediatric Intensive Care Unit at this hospital during April 2011 to July 2011 period were taken as the study subjects. The dependent variable was time to mortality. The independent variable was neutropenia. The confounding factors were gestational age (prematurity) and low birth weight. The association between neutropenia and time to mortality while controlling for gestational age and birth weight was analyzed by Cox-regression model on SPSS 17.0.

Results. The sample consisted of 54 (63.5%) male and 31 (36.5%) female newborns. There were 40 (47.10%) newborns with gestational age <37 weeks, and 45 (52.90%) with weight <2500g. As many as 44 (51.80%) newborns experienced neutropenia while 41 (48.20%) did not experience neutropenia. The death toll of these newborns was 27 (31.80%). Cox regression analysis showed a weak association between neutropenia and mortality, and it was not statistically significant (Hazard Ratio = 1.28; 95% CI 0.55 to 2.94; p=0.568). This estimate has controlled for the effects of gestational age and birth weight. Prematurity showed strong association with the risk of mortality in neonates with sepsis (HR = 3.12; 95% CI 1.07 to 9.68; p=0.037).

Conclusion. Neutropenia and in addition low birth weight show weak and unreliable predictors for mortality in neonates with sepsis. Prematurity shows a strong and reliable predictor for mortality in neonates with sepsis.

Key words: sepsis, neutropenia, mortality, neonates.