

POLIMORFISME T-16934A DAN Arg753Gln GEN *TOLL-LIKE RECEPTOR 2* (TLR2) PADA PENDERITA SEPSIS NEONATORUM BAKTERIAL DI RSUD dr. SOETOMO SURABAYA

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## ABSTRACT

### **The T-16934A and Arg753Gln Polymorphisms of the Toll-like Receptor 2 (TLR2) gene in Patients with Bacterial Sepsis Neonatorum in dr. Soetomo Hospital Surabaya**

Susceptibility to infection may significantly depend on genetic factors such as genetic polymorphism. The role of TLR2 polymorphism (T-16934A and Arg753Gln) on the susceptibility to sepsis in neonates is still controversial and it is currently unresolved whether these polymorphisms could affect NF $\kappa$ B p65 as part of NF $\kappa$ B signaling pathway.

Toll-like receptor 2 gene polymorphisms (T-16934A and Arg753Gln) and NF $\kappa$ B p65 level in neonates with culture-proven sepsis, Deutero Malay race, were analyzed. The genotype frequencies of these two polymorphisms were determined among 36 neonates whom appropriate for gestational age and full term. All of them are Javanese. Only neonates with bacterial sepsis were included into neonatal sepsis study group (12 subjects), and healthy neonates with sepsis risk factor were classified into healthy neonates study group (24 subjects). DNA was extracted from peripheral blood using DNA zol and polymorphisms in TLR2 were determined using sequence specific primers by PCR and sequencing. The plasma level of NF $\kappa$ B p65 was measured by NF $\kappa$ B p65 human ELISA kit.

Of 12 neonates with sepsis, Gram negative bacterias were predominant (75%). Contrary to the expectation, Arg753Gln TLR2 polymorphism was not detected. The genotype frequencies of T-16934A polymorphism were different to other reported data. The frequency of TT (wild type), AA, and TA genotype within the two groups was 16.7%; 50%; and 33.3%, respectively. The mean of NF $\kappa$ B p65 level in neonatal sepsis study group was 14.14 (SD 10.23) ng/ml with median 9.4 (*range* 4.9 – 34.0) ng/ml, which significantly lower than healthy neonate study group ( $p=0.027$ ). There was no significant difference between each genotype variant and bacterial sepsis ( $p=1.000$ ), or NF $\kappa$ B p65 level ( $p=0.443$ ), respectively; but the level of NF $\kappa$ B p65 in TA genotype within the healthy neonate study group subjects was significantly lower than other genotype ( $p=0.024$ ).

In summary, although we can not use TLR2 gene polymorphism as a risk factor for neonatal sepsis susceptibility, there is still a possibility regarding the result of NF $\kappa$ B p65 as a diagnostic marker of bacterial neonatal sepsis.

Keywords: Bacterial neonatal sepsis; TLR2 polymorphism; NF- $\kappa$ B p65; Deutero Malay

