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GSTP1 I105V polymorphism as a risk factor of wound dehiscence in pediatric major abdominal surgery

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The risks associated with wound dehiscence are multifactorial. One of the possible underlying mechanisms that increase the risk of wound dehiscence is the presence of Glutathione S-transferase P1 (GSTP1 I105V) gene polymorphism. The aim of this study is to evaluate the role of GSTP1 I105V genetic polymorphism in the development of surgical wound dehiscence in pediatric patient who underwent major abdominal surgery. This is a prospective cohort study conducted at Harapan Kita Mother and Child Hospital. A total of 116 individuals fulfilled the criteria with 3 different genotypes including Ile/Ile 48.3%, Val/Val 12.9% and Ile/Val 38.7%, which are stated by PCR-RFLP. All subjects underwent routine blood test in preparation for surgery, GSH:GSSG ratio and carbonyl protein measurement to evaluate the presence of oxidative stress. Measurement of TcPO₂ was done in 30% of subject. GSTP1 I105V polymorphism did not increase oxidative stress significantly. However, post-operative TcPO₂ measurement was significantly reduced in patients with Ile/Val and Val/Val genotype. Furthermore, Ile/Val and Val/Val GSTP1 polymorphism in subject having surgical complications (anemia, hypoalbumin and septicemia), increased the risk of wound dehiscence respectively: RR 2.86, CI 0.647–12.66, p 0.166; RR 3, CI 1.829–10.85, p 0.037; RR 3.2, CI 2.876–11.27, p 0.015. Of note, the RR for septicemia was statistically significant in both the groups with polymorphism and in the group with no polymorphism. GSTP1 I105V polymorphisms increase the risk of wound dehiscence in hypoxic state showed by a decrease in post-operative TcPO₂ and in patients with hypoalbuminemia.

Biography

Tinuk Agung Meilany has completed her PhD from Indonesia University School of Medicine. She is working as a Paediatrician at working group in Pediatric Surgery Department, and as a Pediatric Nutrition Consultant at Harapan Kita Woman and Children Hospital.

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