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**Hubungan antara Resistensi Insulin dengan Prolonged Length of Stay Pasien Pediatrik yang Menjalani
Operasi di RSUP Dr Sardjito**
Ezra Senna Pradesya, Prof. dr. Yunita Widyastuti, M.Kes., Sp.An-TI., Subsp.An.Ped (K)., Ph.D , Dr. dr. Djayanti Sari,
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

INTISARI

Latar belakang: Resistensi insulin (RI) merupakan respons fisiologis yang universal terhadap pembedahan, ditandai oleh penurunan sensitivitas jaringan perifer terhadap kerja insulin akibat aktivasi aksis neuroendokrin dan respons inflamasi sistemik. Meskipun telah didokumentasikan bahwa RI pascaoperasi berat meningkatkan risiko komplikasi dan morbiditas pada pasien dewasa—khususnya pada prosedur bedah mayor seperti bedah jantung—hubungan antara RI dengan luaran klinis berupa lama rawat inap (*length of stay*/LOS) pada populasi pediatrik yang menjalani operasi elektif masih belum sepenuhnya dipahami.

Tujuan: Mengetahui hubungan antara resistensi insulin pascaoperasi (HOMA-IR pasca induksi dan 24 jam pascaoperasi) dengan kejadian *prolonged length of stay* (PLOS, ≥6 hari) pada pasien pediatrik yang menjalani operasi elektif di RSUP Dr. Sardjito.

Metode: Penelitian observasional retrospektif dengan desain kohort dilaksanakan pada 50 pasien pediatrik berusia 2–16 tahun dengan status fisik ASA I–II yang menjalani operasi elektif dengan anestesi umum di RSUP Dr. Sardjito periode Januari–Juni 2025. Resistensi insulin dinilai menggunakan HOMA-IR pada dua titik waktu (pasca induksi dan 24 jam pascaoperasi). Prolonged LOS didefinisikan sebagai lama rawat inap ≥6 hari (persentil ke-80 dari distribusi LOS sampel). Analisis statistik meliputi uji Mann-Whitney, *Fisher exact test*, korelasi Spearman, Kaplan-Meier, *log-rank test*, dan regresi logistik multivariat.

Hasil: Dari 50 subjek, 27 (54%) mengalami resistensi insulin dan 10 (20%) mengalami prolonged LOS. Tidak ditemukan hubungan yang signifikan antara resistensi insulin dengan kejadian *prolonged* LOS baik pada analisis bivariat (p=0,736 *Fisher exact*; *log-rank* p=0,502) maupun korelatif (Spearman r=-0,129 hingga 0,166; p>0,05).

Kesimpulan: Tidak ada hubungan yang signifikan antara resistensi insulin (berdasarkan skor HOMA-IR) dengan kejadian *prolonged length of stay* pasca operasi pada pasien bedah anak di RSUP Dr. Sardjito.

Kata kunci: resistensi insulin, HOMA-IR, *length of stay*, *prolonged* LOS, pediatrik, perioperatif, bedah anak

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ABSTRACT

Background: *Insulin resistance (IR) is a universal physiological response to surgical trauma, characterized by reduced peripheral tissue sensitivity to insulin due to activation of the neuroendocrine axis and systemic inflammatory response. Although severe postoperative IR has been documented to increase the risk of complications and morbidity in adult patients—particularly in major surgical procedures such as cardiac surgery—the relationship between IR and clinical outcomes in the form of length of stay (LOS) in pediatric patients undergoing elective surgery remains incompletely understood.*

Objective: *To determine the relationship between postoperative insulin resistance (HOMA-IR at post-induction and 24 hours post-surgery) and the incidence of prolonged length of stay (PLOS, ≥6 days) in pediatric patients undergoing elective surgery at RSUP Dr. Sardjito.*

Methods: *A retrospective observational cohort study was conducted on 50 pediatric patients aged 2–16 years with ASA physical status I–II who underwent elective surgery under general anesthesia at RSUP Dr. Sardjito from January to June 2025. Insulin resistance was assessed using HOMA-IR at two time points (post-induction and 24 hours post-surgery). Prolonged LOS was defined as hospital stay ≥6 days (80th percentile of the sample LOS distribution). Statistical analyses included Mann-Whitney test, Fisher exact test, Spearman correlation, Kaplan-Meier analysis, log-rank test, and multivariate logistic regression.*

Result: *Of 50 subjects, 27 (54%) had insulin resistance and 10 (20%) experienced prolonged LOS. No significant association was found between insulin resistance and prolonged LOS in either bivariate analysis ($p=0.736$ Fisher exact; log-rank $p=0.502$) or correlative analysis (Spearman $r=-0.129$ to 0.166; $p>0.05$).*

Conclusion: *There is no significant association between insulin resistance (based on HOMA-IR scores) and the incidence of prolonged postoperative length of stay in pediatric surgical patients at RSUP Dr. Sardjito.*

Key words: ***insulin resistance, HOMA-IR, length of stay, prolonged LOS, pediatric, perioperative, pediatric surgery***