

ABSTRAK

Latar Belakang: Cedera ginjal akut (CGA) bisa terjadi sampai 30% pada semua pasien yang menjalani pembedahan jantung dengan mesin *Cardio-Pulmonary Bypass (CPB)*. Pasien yang mengalami cedera ginjal akut dan membutuhkan dialisis, sebagian besar akan tergantung dialisis selamanya, menyebabkan peningkatan morbiditas jangka panjang dan mortalitas. Di Indonesia, belum ada penelitian yang mempelajari kaitan antara durasi *CPB* dengan insidensi cedera ginjal akut pascaoperasi jantung. Oleh karena itu agar bisa memberikan informasi yang jelas terhadap pasien terkait strategi operasi dan pengambilan keputusan operasi, diperlukan penelitian tentang korelasi antara durasi *CPB* dengan kejadian cedera ginjal akut.

Tujuan: Untuk mengetahui bagaimana korelasi antara durasi *CPB* dengan insidensi cedera ginjal akut pascaoperasi bedah jantung terbuka.

Metode dan Subyek: Penelitian ini bersifat observasional analitik dengan kohort retrospektif, dilakukan terhadap pasien-pasien yang menjalani operasi bedah jantung terbuka di RSUP Dr. Sardjito periode Januari 2019 - Juni 2020.

Hasil: Pasien yang mengalami cedera ginjal akut (CGA) ada 72 (34,8%) dan 3 (1,4%) pasien harus menjalani hemodialisis. Uji korelasi *point biserial pearson* antara *CPB* dan CGA hasilnya, nilai koefisien korelasi (r) 0,383, $p = 0,001$. Melalui tabulasi silang durasi *CPB* terhadap cedera ginjal akut didapatkan nilai Risiko Relatif (RR) 3,088 95% CI 1,952 - 4,885. Diidentifikasi sembilan dari sepuluh pasien yang meninggal pascaoperasi menderita cedera ginjal akut, RR = 16,875 95% CI 2,181 - 130,572 nilai $\phi = 0,261$, $p = 0,001$.

Simpulan: Ada korelasi bermakna antara durasi *CPB* dengan cedera ginjal akut dengan arah hubungan positif. Pasien yang menjalani operasi bedah jantung terbuka dengan durasi *CPB* >71,13 menit memiliki risiko 3,088 kali menderita cedera ginjal akut. Pasien yang menderita CGA 16,875 kali lebih berisiko meninggal dunia saat perawatan pascaoperasi di rumah sakit.

Kata Kunci: *CPB*, CGA, korelasi

ABSTRACT

Background: Acute kidney injury (AKI) can occur in up to 30% of all patients undergoing cardiac surgery with a Cardio-Pulmonary Bypass (CPB) machine. Patients with acute kidney injury requiring dialysis are largely dependent on dialysis indefinitely, leading to increased long-term morbidity and mortality. In Indonesia, no studies have studied the relationship between the duration of CPB and the incidence of acute kidney injury after heart surgery. Therefore, in order to provide clear information to patients regarding surgical strategies and surgical decision making, it is necessary to study the correlation between the duration of CPB and the incidence of acute kidney injury.

Objective: To determine the correlation between the duration of CPB and the incidence of acute kidney injury after open heart surgery.

Methods and Subjects: This study was an analytical observational study with a retrospective cohort, which was conducted on patients underwent open heart surgery at Doctor Sardjito Hospital for the period of January 2019 - June 2020.

Results: There were 72 (34.8%) and 3 (1.4%) patients with acute kidney injury (AKI) who had to undergo hemodialysis. Pearson point biserial correlation test between CPB and AKI results, the correlation coefficient value (r) is 0.383, $p = 0.01$. By cross-tabulating the duration of CPB for acute kidney injury, the Relative Risk (RR) value was 3.088 95% CI 1.952 – 4.885. It was identified that nine out of ten patients who died postoperatively suffered from acute kidney injury, RR = 16.875 95% CI 2.181 – 130.572, $\phi = 0.261$, $p = 0.001$.

Conclusion: There is a significant correlation between the duration of CPB and acute kidney injury with a positive direction. Patients who underwent open heart surgery with a duration of CPB >71.13 minutes had 3.088 times higher risk of suffering from acute kidney injury. Patients suffering from AKI were 16.875 times more likely to die during postoperative hospital care.

Keywords: CPB, AKI, correlation