

## INTISARI

### HUBUNGAN ANTARA INDEKS RESISTIF GINJAL INTRAOPERASI DENGAN KEJADIAN DINI GAGAL GINJAL AKUT PASKABEDAH PINTAS ARTERI KORONER ELEKTIF DENGAN MESIN PINTAS JANTUNG PARU

**Latar Belakang:** Gagal Ginjal Akut (GGA) merupakan salah satu komplikasi serius paskabedah pintas arteri koroner (BPAK) dengan mesin pintas jantung paru (PJP). Indeks Resistif Ginjal (IRG) intraoperasi yang diukur menggunakan *Transesophageal Echo-Doppler Ultrasonography* (TE-EDus) merupakan salah satu faktor berpotensi menjadi prediktor GGA. Namun, hubungan antara IRG pada berbagai tahap operasi dengan kejadian GGA masih belum jelas.

**Tujuan:** Penelitian ini bertujuan untuk mengevaluasi hubungan antara IRG intraoperasi (pramesin PJP, intramesin PJP, dan paskamesin PJP) dengan kejadian GGA.

**Metode:** Studi observasional prospektif pada 78 pasien BPAK dengan mesin PJP di RS Jantung dan Pembuluh Darah Harapan Kita Jakarta. Pengukuran IRG dilakukan menggunakan mesin TEE-Dus pramesin PJP, intramesin PJP, dan paskamesin PJP. Pemeriksaan paska operatif meliputi kadar kreatinin dan pemantauan penurunan produksi urin. Penegakkan diagnosis GGA berdasarkan kriteria KDIGO. Uji korelasi dilakukan untuk menilai hubungan IRG intraoperasi dengan kejadian dini GGA paskaoperasi. Analisa bivariat dan multivariat dilakukan untuk menilai variabel lain yang berpengaruh.

**Hasil:** Sebagian besar subjek penelitian adalah laki-laki (80,8%). Didapatkan 50 subjek (64,1%) mengalami GGA paskaoperasi. Pemantauan hingga 72 jam terdapat 2 subjek masih mengalami GGA derajat 2, dan 2 subjek mengalami GGA derajat 3. Hasil analisa statistik menunjukkan bahwa tidak terdapat perbedaan bermakna IRG antara kelompok yang mengalami GGA dan non-GGA pada ketiga fase pengukuran (pramesin PJP  $p=0,206$ ; intramesin PJP  $p=0,450$ ; paskamesin PJP  $p=0,525$ ).

**Kesimpulan:** Nilai IRG pramesin PJP, npIRG intramesin PJP dan IRG paskamesin PJP yang lebih tinggi tidak berhubungan dengan peningkatan risiko kejadian GGA dini paska-BPAK elektif dengan mesin PJP.

**Kata kunci:** Bedah Pintas Arteri Koroner, Gagal Ginjal Akut, Indeks Resistif Ginjal, Mesin Pintas Jantung Paru, *Transesophageal Echo-Doppler Ultrasonography*

## ABSTRACT

### **THE ASSOCIATION BETWEEN INTRAOPERATIVE RENAL RESISTIVE INDEX AND THE INCIDENCE OF EARLY POSTOPERATIVE ACUTE KIDNEY INJURY IN ELECTIVE CORONARY ARTERY BYPASS GRAFT SURGERY WITH CARDIOPULMONARY BYPASS**

**Background:** Acute kidney injury (AKI) remains one of the most serious and common complications following coronary artery bypass grafting (CABG) with cardiopulmonary bypass (CPB), contributing significantly to increased morbidity and mortality. The intraoperative renal resistive index (RRI), measured using transesophageal echo-Doppler ultrasonography (TE-EDus), has been proposed as a potential early predictor of AKI. However, the association between RRI measured at different intraoperative stages and the incidence of AKI is not yet well established.

**Objective:** This study aims to evaluate the relationship between intraoperative RRI (pre-CPB, intra-CPB, and post-CPB) and the incidence of postoperative AKI.

**Methods:** A prospective observational study was conducted on 78 patients undergoing elective CABG with CPB at the National Cardiovascular Center Harapan Kita, Jakarta. RRI was measured using TEE-Dus at three phases: pre-CPB, intra-CPB, and post-CPB. Postoperative assessments included serum creatinine levels and urine output monitoring. AKI diagnosis was established according to KDIGO criteria. Correlation analysis was used to evaluate the association between intraoperative RRI and early postoperative AKI. Bivariate and multivariate analyses assessed other contributing variables.

**Results:** Most subjects were male (80.8%). A total of 50 subjects (64.1%) developed postoperative AKI. During monitoring up to 72 hours, two subjects remained in AKI stage 2, and two progressed to stage 3. No significant differences were found in RRI values between AKI and non-AKI groups across all phases (pre-CPB  $p = 0.206$ ; intra-CPB  $p = 0.450$ ; post-CPB  $p = 0.525$ ).

**Conclusion:** Higher RRI values measured before, during, or after CPB were not associated with increased risk of early AKI following elective CABG with CPB.

**Keywords:** Acute Kidney Injury, Cardiopulmonary Bypass, Coronary Artery Bypass Grafting, Renal Resistive Index, Transesophageal Echo-Doppler Ultrasonography



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**PASKABEDAH PINTAS ARTERI KORONER ELEKTIF DENGAN MESIN PINTAS JANTUNG PARU**

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Universitas Gadjah Mada, 2026 | Diunduh dari <http://etd.repository.ugm.ac.id/>