

# Peran N-Asetilsistein Terhadap Kejadian Penurunan Fungsi Ginjal Paska Operasi Bedah Pintas Arteri Koroner = The Role of N-Acetylsysteine in the Prevention of Acute Kidney Injury in Patients after Coronary Artery Bypass Graft Surgery

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## Abstrak

Tujuan : Mengetahui peranan NAC sebagai proteksi terjadinya penurunan fungsi ginjal pada penderita yang menjalani operasi BP AK Latar Belakang : Gangguan ginjal akut (GgGA) merupakan salah satu penyebab utama morbiditas dan mortalitas pada pasien-pasien yang menjalani operasi bedah pintas arteri koroner (BP AK). Penurunan fungsi ginjal yang terjadi paska operasi jan tung bersifat multifaktoral antara lain : instabilitas hemodinamik perioperatif, gangguan perfusi ginjal, gangguan iskemia reperfusi, dan teraktivasinya jalur inflamasi yang pada akhirnya menimbulkan nekrosis tubular akuL Intervensi fannakologis dengan pemberian N-asetilsistein (NAC) sebagai profilaksis GgGA paska operasi BP AK masih banyak diperdebatkan. Namun efikasi NAC cukup menjanjikan sebagai profilaksis GgGA paska operasi berkaitan dengan efek vasodilator dan anti oksidan yang poten. Metode : Penelitian ini merupakan percobaan klinik tersamar tunggal dengan randomisasi (Randomized clinical trial = RC1) pada penderita yang menjalani operasi BPAK di Departemen Kardiologi dan Kedokteran Vaskular FKUII PJNHK. dari bulan Mei 2011 sampai dengan bulan Agustus 2011 yang mernnuhi kriteria penerimaan. Subjek penelitian dibagi menjadi dua kelompok antara kelompok perlakuan (NAC) yang mendapat NAC sebelum dan sesudah operasi BP AK dan kelompok kontrol. Dilakukan penghitungan nilai rerata dan simbang baku maupun nilai median hila sebaran data tidak normal. Pengujian kemaknaan statistik dilakukan dengan uji Student t bagi hubungan antara variabel kualitatif dan kuantitatif. Hubungan antara dua variabel kualitatif diuji dengan Chi Square test. Pengambilan kesimpulan statistik didasarkan pada batas kemaknaan sebesar  $< 0.05$ . Hasil : Dari 124 subjek yang berpartisipasi pada studi ini, angka kejadian GgGA didapatkan sebanyak 27 subjek (21.8%). NAC yang diberikan pada kelompok perlakuan temyata hanya bermanfaat secara bermakna menurunkan risiko GgGA selama 6 jam paska operasi (RIFLE- Risk) dibandingkan dengan kelompok kontrol masing-masing dengan 5 (8.1%) vs 18 (29.0%),  $P= 0.003$  . Selanjutnya selama pengamatan penurunan fungsi ginjal dalam 12 jam (RIFLE-Injury) sampai 48 jam (RIFLE-Failure) tidak ditemukan adanya perbedaan yang bermakna antara kelompok perlakuan dengan kelompok kontrol masing-masing dengan 4 (6.5%) vs 3 (4.8%),  $P= 1.000$  dan 4 (6.5%) vs 1 (1.6%),  $P= 0.365$ .

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Aim of the study : To analyze the role of N-Acetylcysteine (NAC) as the prophylaxis against Acute kidney injury (AKI) in patients after coronary artery bypass graft (CABG) surgery. Background : AKI is one of the most common cause of morbidity and mortality in patients who underwent CABG. AKI following CABG had multifactoral causes namely : perioperative haemodynamic instability, renal perfusion mismatch, ischemia reperfusion injury, and activation of inflammation pathway which consequently causing acute tubular necrosis. Pharmacological intervention by the administration of NAC as the prophylaxis of AKI following CABG surgery was still the matter of controversy. However, it's still promising regarding its own efficacy as vasodilator and potential anti oxidant Metode : A prospective randomized clinical trial, placebo-

controlled, single-blind study was conducted in patients who underwent CABG surgery at the Department Of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Indonesia/ National Cardiovascular Centre Harapan Kita Jakarta from May 2011 until August 2011. After being approved by the local ethic committee and written informed consents, subjects were randomly assigned to receive NAC before and after surgery or placebo. All data were analyzed with the calculation of either mean and standard deviation or median whenever abnormal variance was noted. Statistical analyze was performed with Student t test to qualitative and quantitative variables. The association of two qualitative variables was analyzed using Chi Square test. Statistical conclusion was based on the P value of less than 0.05

Result : There were 124 subjects participating in this study. The incidence of AKI was found in 27 (21.8%) subjects. NAC only showed significantly efficacious in reducing AKI within 6 hours after CABG (RIFLE- Risk) with 5 (8.1 %) subjects with NAC vs 18 (29.0%) subjects with placebo consecutively with P value 0.003. Further observation in the presence of AKI within 12 hours (RIFLE-Injury) till 24 hours post operative (RIFLE-Failure) showed no significant difference between NAC and placebo with 4 (6.5%) patients vs 3 (4.8%) patients with P= 1.000 and 4 (6.5%) patients vs 1 (1.6%) with P = 0.365 consecutively. Conclusion : The administration of NAC did not significantly prevent AKI following CABG surgery but only lowered the risk of AKI within 6 hours post operative (RIFLE-R)