

**UJI CYSTATIN C SERUM DAN KREATININ SERUM SEBAGAI
DIAGNOSIS GANGGUAN GINJAL AKUT PADA ANAK SAKIT
KRITIS**

TESIS

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Uji Cystatin C Serum dan Kreatinin Serum Sebagai Diagnostik Gangguan Ginjal Akut Pada Anak Sakit Kritis

ABSTRAK

Latar belakang. Gangguan ginjal akut (GgGA) berhubungan dengan mortalitas dan morbiditas yang tinggi diantara anak-anak sakit kritis. Cystatin C adalah protease inhibitor yang menurut beberapa penelitian merupakan biomarker yang baik untuk mendeteksi gangguan ginjal akut pada anak sakit kritis.

Tujuan. Mengetahui sensitivitas, spesifisitas, nilai prediksi positif, dan nilai prediksi negatif cystatin C serum dan kreatinin serum dalam mendiagnosis gangguan ginjal akut pada anak sakit kritis.

Metode. Penelitian potong lintang pada 70 subjek di HCU dan PICU RSUP. Dr. M. Djamil Padang dari Mei 2017 – Juni 2017. Subjek penelitian laki-laki sebesar 55,71% dan median usia 16,50 bulan. Subjek dipilih dengan teknik konsekutif. Dilakukan pemeriksaan cystatin C serum dengan ELISA dan pemeriksaan serum kreatinin dengan kolorimetrik. Baku emas menggunakan estimasi laju filtrasi glomerulus berdasarkan formula Schwartz. Gangguan ginjal akut didiagnosis dengan kriteria pRIFLE. Kurva *receiver operating characteristic (ROC)* digunakan untuk menilai cystatin C dan kreatinin dalam mendiagnosis GgGA.

Hasil. Rerata cystatin C dan kreatinin serum pada GgGA $0,88 \pm 0,14$ mg/L, $1,13 \pm 0,59$ mg/dL berturut-turut. Tiga puluh tujuh pasien didiagnosis GgGA. *Cut off point* cystatin C serum 0,56 mg/L dengan sensitivitas 85,19%, spesifisitas 60,47%, nilai prediksi positif 57,50%, nilai prediksi negatif 13,33%. *Cut off point* kreatinin serum 0,95 mg/dL dengan sensitivitas 51,85%, spesifisitas 100%, nilai prediksi positif 100%, nilai prediksi negatif 23,21%.

Kesimpulan. Cystatin C serum sensitif untuk mendiagnosis GgGA tetapi kurang spesifik.

Kata kunci: cystatin C serum, gangguan ginjal akut, sakit kritis

Serum Cystatin C and Serum Creatinine for Diagnosing Acute Kidney Injury in Critically Ill Children

ABSTRACT

Background. Acute kidney injury (AKI) has been associated with high morbidity and mortality rates among critically ill children. Cystatin C is a protease inhibitor, and studies have shown that it is promising marker for diagnosing AKI in critically ill children.

Objective. To assess specificity, sensitivity, positive predictive value, and negative predictive value of serum cystatin C and creatinine for diagnosing AKI in critically ill children.

Methods. A cross sectional study was conducted on 70 patients at PICU and HCU of Dr. M. Djamil Hospital Padang from May 2017 to June 2017. Fifty five point seventy one percent patients were boys and median aged group was 16,50 months old. The samples were selected consecutively. Serum cystatin C was examined by ELISA while serum creatinine was examined by colorimetric. Estimated glomerular filtration rate by using Schwartz formula was the gold standard. Acute kidney injury was diagnosed by modified pRIFLE criteria. *Receiver operating characteristic (ROC)* curve analysis was performed to assess the utility of serum cystatin C and creatinine for diagnosing AKI.

Results. Serum cystatin C, serum creatinine (mean \pm standart deviation) in AKI group were $0,88 \pm 0,14$ mg/L, $1,13 \pm 0,59$ mg/dL, respectively. Thirty seven patients was diagnosed AKI. Serum cystatin C sensitivity with cutoff value 0,56 mg/L was 85,19%, specificity 60,47%, positive predictive value 57,50%, negative predictive value 13,33%. Serum creatinine sensitivity with cutoff value 0,95 mg/dL was 51,85%, specificity 100%, positive predictive value 100%, negative predictive value 23,21%.

Conclusions. Serum cystatin C was sensitive for diagnosing AKI but less specific.

Keywords: serum cystatin C, AKI, critically ill