NILAI DIAGNOSTIK C-REACTIVE PROTEIN DAN PROCALCITONIN PADA PASIEN SEPSIS

ABSTRAK

Latar belakang: *C-Reactive protein* (CRP) merupakan protein fase akut yang dihasilkan oleh hepar yang sering digunakan untuk mendeteksi adanya infeksi. *Procalcitonin* (PCT) juga merupakan biomarker yang efektif untuk mendeteksi infeksi maupun sepsis. Keakuratan nilai diagnostik PCT dan CRP berbeda disetiap studi. Berdasarkan pertimbangan diatas, penelitian dengan metode meta-analisis dipilih oleh peneliti untuk meninjau literatur mengenai CRP dan PCT pada sepsis serta peneliti ingin mengetahui keefektifan dan nilai diagnostik dari kedua biomarker dan mencari biomarker yang lebih baik guna memprediksi sepsis.

Metode: Pencarian literatur secara sistematis dilakukan pada dua *database* yaitu Pubmed dan Cochrane Library untuk mengidentifikasi studi yang relevan mengenai nilai diagnostik PCT dan CRP pada pasien sepsis. *Pooled sensitivity, pooled specificity* serta *summary receiving-operating characteristic curve* (SROC) dihitung untuk menilai akurasi nilai diagnostik dari PCT dan CRP. Perhitungan *pooled sensitivity* dan *pooled specificity* dilakukan dengan metode bivariat regresi.

Hasil: Sebanyak 13 studi dilibatkan dalam meta-analisis ini dengan total 1915 partisipan. *Pooled sensitivity* dan *specificity* PCT menunjukan hasil sebesar 0.79 [95% *confidence interval* [CI] 0.69, 0.87] dan 0.84 [95% CI 0.75, 0.90], sedangkan CRP memiliki hasil yang lebih rendah yaitu 0.77 [95% CI 0.64, 0.86] dan 0.79 [95% CI 0.66, 0.88]. Berdasarkan hasil *summary receiving-operating characteristic curve* (SROC), nilai akurasi diagnostik untuk PCT pada yaitu 0.89 (95% CI 0.86 - 0.91) sedangkan CRP menunjukan angka yang lebih rendah yaitu 0.85 (95% CI 0.81 – 0.88)

Kesimpulan: Studi meta-analisis ini menunjukan bahwa PCT dan CRP mempunyai akurasi yang baik untuk diagnosis sepsis pada pasien dewasa. Akurasi diagnosis dan spesifisitas serta sensitivitas PCT lebih tinggi daripada CRP

Kata kunci: Sepsis, Procalcitonin, C-Reactive protein, meta-analisis

DIAGNOSTIC VALUE OF PROCALCITONIN AND C-REACTIVE PROTEIN FOR SEPSIS

ABSTRACT

Background: *C-reactive protein (CRP) is an acute phase protein produced by the liver which is often used to detect infection. Procalcitonin (PCT) is also an effective biomarker for detecting infection and sepsis. The diagnostic accuracy of PCT and CRP was different in each study. Based on the above considerations, a study with a meta-analysis method was chosen by the researcher to review the literature on CRP and PCT in sepsis. The researcher wanted to know the effectiveness and diagnostic value of the two biomarkers and to find a better biomarker to predict sepsis.*

Methods: *A systematic literature search was performed in Pubmed and Cochrane Library to identify relevant studies reporting the diagnostic value of PCT and CRP in patients with sepsis. Pooled sensitivity, pooled specificity and summary receiving-operating characteristic curve (SROC) were calculated to assess the accuracy of the diagnostic values of PCT and CRP. The calculation of pooled sensitivity and pooled specificity was carried out using the bivariate regression method.*

Results: *A total of 13 studies enrolling 1915 patients were included in this meta-analysis. Pooled sensitivity and specificity of PCT were 0.79 [95% confidence interval [CI] 0.69-0.87] and 0.84 [95% CI 0.75-0.90], respectively. Pooled sensitivity and specificity of CRP were 0.77 [95% CI 0.64-0.86] and 0.79 [95% CI 0.66-0.88], respectively. The area under summary receiving-operating characteristic curve (SROC) of PCT war larger than CRP 0.89 [95% CI 0.86-0.91] vs. 0.85 [95% CI 0.81-0.88.*

Conclusion: *In this meta-analysis, the results indicate a good degree of diagnostic accuracy of PCT and CRP for the diagnosis of sepsis in adult patients. The diagnosis accuracy, specificity and sensitivity of PCT was higher than CRP.*

Keywords: *Sepsis, Procalcitonin, C-Reactive protein, meta-analysis*