

## Kadar procalcitonin dan perannya sebagai biomarker sepsis pada pasien tumor padat dengan metastasis jauh = Level of procalcitonin and its role as a sepsis biomarker in patient with metastatic solid tumor

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### Abstrak

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Latar Belakang: Pengaruh metastasis sebagai penyebab peningkatan procalcitonin (PCT) pada pasien tumor padat nonsepsis masih belum jelas. Studi-studi sebelumnya memberikan hasil yang tidak konklusif. Nilai titik potong PCT untuk diagnosis sepsis pada tumor padat metastasis juga belum diketahui.

Tujuan: Mengetahui peran PCT dalam diagnosis sepsis pada pasien tumor padat dengan metastasis.

Metode: Studi potong lintang terhadap pasien tumor padat yang berobat di RSCM September-Desember 2015. Pada pasien ditentukan ada tidaknya sepsis menggunakan kriteria sepsis ACCP/SCCM 2001, dilakukan pemeriksaan darah perifer, serta PCT. Dilakukan analisis untuk mengetahui perbedaan kadar PCT pasien tumor padat metastasis dan tanpa metastasis yang tidak sepsis. Selain itu, dilakukan pula pencarian nilai titik potong PCT untuk diagnosis sepsis pada pasien tumor padat metastasis dengan menggunakan ROC.

Hasil dan Pembahasan: Didapatkan 112 pasien tumor padat, pria sebanyak 51%, dengan rerata usia  $47,9 \pm 12,47$  tahun. Sebanyak 71 (63,4%) pasien sudah didapatkan metastasis, 36 (32,1%) diantaranya sepsis, dan 6 (5,3%) mengalami SIRS. Dari 41 (36,6%) pasien tanpa metastasis, 9 (8%) mengalami sepsis, dan 5 (4,4%) SIRS. Terdapat perbedaan bermakna kadar PCT pada pasien tumor padat metastasis dibandingkan tanpa metastasis pada kondisi nonsepsis [0,25 ng/mL (0,07-1,76) vs. 0,09 ng/mL (0,03-0,54);  $p < 0,001$ ]. Pasien tumor padat metastasis yang mengalami sepsis memiliki kadar PCT lebih tinggi dibandingkan nonsepsis [3,5 ng/mL (0,66-189,4) vs. 0,25 ng/mL (0,07-1,76);  $p < 0,001$ ]. Dari kurva ROC kadar PCT pada tumor padat metastasis, didapatkan AUC [0,956, IK 0,916-0,996] untuk mendiagnosis sepsis. Nilai titik potong PCT untuk diagnosis sepsis pada pasien tumor padat metastasis adalah 1,14 ng/mL dengan sensitivitas 86% dan spesifisitas 88%.

Kesimpulan: Pada kondisi nonsepsis, kadar PCT pasien tumor padat metastasis lebih tinggi dibandingkan pasien tanpa metastasis. Nilai titik potong PCT untuk diagnosis sepsis pada tumor padat metastasis adalah 1,14 ng/mL. **ABSTRACT**  
Background: The effect of metastasis as a cause of increased procalcitonin (PCT)

in patients with solid tumors without sepsis remains unclear. Previous studies did not provide conclusive results. Cut off point of PCT for sepsis diagnosis in metastatic solid tumors is also unknown.

Objective: To determine the role of PCT in the diagnosis of sepsis toward

metastatic solid tumors patients.

**Methods:** A cross sectional study was conducted in solid tumor patients who were admitted to Cipto Mangunkusumo, Jakarta between September 2015 and December 2015. The ACCP/SCCM 2001 criteria was used to identify sepsis or SIRS in patients. Procalcitonin level, as well as routine blood examination, was performed to determine the differences of PCT level among solid tumor patients with and without metastasis. Cut off point of PCT for diagnosing sepsis in patients with metastatic solid tumors was determined using ROC curve.

**Results and Discussion:** There were 112 patients with solid tumors, 51% male, with mean of age  $47,9 \pm 12,47$  years. A total of 71 (63,4%) patients had metastasis, while 36 (32,1%) of them had sepsis and 6 (5,3%) experienced SIRS. Among 41 (36,6%) patients without metastasis, 9 (8%) had sepsis and 5 (4,4%) had SIRS. In the absence of sepsis, the PCT level was significantly higher in patients with metastatic solid tumors compared those without metastasis [0,25 ng/mL (0,07-1,76) vs. 0,09 ng/mL (0,03-0,54);  $p < 0,001$ ]. Metastatic solid tumor patients with sepsis had PCT levels higher than those without sepsis [3,5 ng / mL (0,66 to 189,4) vs. 0,25 ng / mL (0,07-1,76);  $p < 0,001$ ]. ROC curve showed that level of PCT for sepsis in metastatic solid tumors was AUC [0,956, IK 0,916-0,996]. Cut off point of PCT for sepsis in patients with metastatic solid tumors was 1.14 ng / mL with a sensitivity of 86% and specificity of 88%.

**Conclusion:** In the absence of sepsis, PCT levels of patients with metastatic solid tumors is higher than patients without metastasis. Cut off point of PCT for sepsis diagnosis in metastatic solid tumors was 1,14 ng / mL. ;**Background:** The effect of metastasis as a cause of increased procalcitonin (PCT) in patients with solid tumors without sepsis remains unclear. Previous studies did not provide conclusive results. Cut off point of PCT for sepsis diagnosis in metastatic solid tumors is also unknown.

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