

INTERLEUKIN-6 DAN MONOCYTE-TO-HDL RATIO SEBAGAI FAKTOR RISIKO KEMATIAN PADA SEPSIS

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ABSTRAK

LATAR BELAKANG : Sepsis merupakan kondisi yang mengancam jiwa dengan angka kematian yang masih tinggi. *Interleukin-6* (IL-6) sebagai sitokin pro-inflamasi dan *Monocyte-to-HDL Ratio* (MHR) sebagai penanda inflamasi dan disfungsi lipid, diduga berperan dalam patogenesis dan prognosis sepsis. Peran keduanya sebagai faktor risiko kematian pada sepsis masih perlu diteliti lebih lanjut.

TUJUAN : Membuktikan kadar IL-6 dan MHR sebagai faktor risiko kematian pada pasien sepsis.

METODE : Penelitian kohort prospektif dilakukan pada 82 pasien sepsis di Instalasi Gawat Darurat RSUP Dr. Kariadi Semarang pada periode Juli-Agustus 2025. Pemeriksaan kadar IL-6 serum dengan metode ELISA, sedangkan pemeriksaan jumlah monosit absolut dan kadar HDL menggunakan alat hematologi dan kimia *analyzer* untuk menghitung MHR. Kejadian kematian dipantau selama 28 hari. Analisis statistik menggunakan uji *Chi-Square*, *Mann-Whitney*, dan kurva ROC.

HASIL : Kadar IL-6 dan nilai MHR kelompok *non-survive* secara signifikan lebih tinggi daripada kelompok *survive* [IL-6: $21,81 \pm 15,77$ vs $15,48 \pm 14,08$ pg/mL, $p=0,013$; MHR: $79,44 \pm 84,85$ vs $37,44 \pm 51,82$, $p=0,001$]. Kadar IL-6 > 14,84 pg/mL memiliki risiko kematian 1,59 kali (RR=1,59; 95% CI: 1,03-2,44). Nilai MHR > 34,04 memiliki risiko kematian 1,67 kali (RR=1,67; 95% CI: 1,07-2,59).

SIMPULAN : Kadar IL-6 > 14,84 ng/mL berisiko 1,59 kali untuk terjadi kematian pada sepsis dan nilai MHR > 34,04 berisiko 1,67 kali untuk terjadi kematian pada pasien sepsis.

Kata Kunci : sepsis, *interleukin-6*, *monocyte-to-HDL ratio*, faktor risiko, kematian.

INTERLEUKIN-6 AND MONOCYTE-TO-HDL RATIO AS RISK FACTORS FOR MORTALITY IN SEPSIS

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ABSTRACT

BACKGROUND : Sepsis is a life-threatening condition with a persistently high mortality rate. Interleukin-6 (IL-6), as a pro-inflammatory cytokine, and the Monocyte-to-HDL Ratio (MHR), as a marker of inflammation and lipid dysfunction, are suspected to play a role in the pathogenesis and prognosis of sepsis. However, their roles as risk factors for mortality in sepsis require further investigation.

AIM : To determine whether serum IL-6 levels and MHR are risk factors for mortality in septic patients.

METHOD : A prospective cohort study was conducted on 82 septic patients in the Emergency Department of Dr. Kariadi Central General Hospital, Semarang, between July and August 2025. Serum IL-6 levels were measured using the ELISA method, while absolute monocyte count and HDL level were measured with an haematology and chemical analyzer to calculate MHR. Mortality was monitored over 28 days. Statistical analysis used the Chi-Square test, Mann-Whitney test and ROC curve.

RESULT : Interleukin-6 levels and MHR values were significantly higher in the non-survivor group compared to the survivor group [IL-6: 21.81 ± 15.77 vs. 15.48 ± 14.08 pg/mL, $p=0.013$; MHR: 79.44 ± 84.85 vs. 37.44 ± 51.82 , $p=0.001$]. An IL-6 level > 14.84 pg/mL increased the risk of death by 1.59 times (RR=1.59; 95% CI: 1.03-2.44). An MHR value > 34.04 increased the risk of death by 1.67 times (RR=1.67; 95% CI: 1.07-2.59).

CONCLUSION : An IL-6 level > 14.84 ng/mL is associated with a 1.59-fold higher risk of mortality in sepsis, and an MHR value > 34.04 is associated with a 1.67-fold higher risk of mortality in patients with sepsis.

Keyword : sepsis, interleukin-6, monocyte-to-HDL ratio, risk factor, mortality