

Perbandingan antara Bersihan Laktat dan Logistic Organ Dysfunction System (LODS) sebagai Prediktor Mortalitas Pasien di Unit Perawatan Intensif Rumah Sakit Cipto Mangunkusumo = Comparison between lactate clearance and Logistic Organ Dysfunction System (LODS) as predictors of patient mortality in the Intensive Care Unit of Cipto Mangunkusumo Hospital

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Abstrak

Latar Belakang: Mortalitas pasien UPI lebih tinggi dari pasien rawat lainnya. Instrumen prediktor mortalitas pada pasien UPI dapat membantu untuk melakukan stratifikasi risiko dan pengambilan keputusan klinis dalam tatalaksana pasien. Skor LODS merupakan salah satu instrumen yang terbukti memiliki keunggulan dibandingkan instrumen prediktor yang saat ini digunakan di UPI RSCM. Meskipun demikian, komponen skor LODS membutuhkan pemeriksaan yang tidak murah sehingga sulit diaplikasikan terutama pada pasien tanpa jaminan kesehatan. Bersihan laktat merupakan alternatif yang lebih murah dan ditemukan memiliki kemampuan prediktor mortalitas yang baik pada penelitian sebelumnya.

Tujuan: Mengetahui perbandingan kemampuan prediktor bersihan laktat dengan skor LODS terhadap mortalitas pasien dalam 30 hari pasien yang dirawat di UPI RSCM.

Metode: Penelitian ini adalah studi kohort retrospektif menggunakan data rekam medis pasien UPI RSCM yang dirawat pada rentang Agustus 2015 – April 2018. Data yang di ambil berupa karakteristik, skor LODS hari pertama, laktat inisial, laktat 6-24 jam serta terjadi atau tidaknya mortalitas dalam 30 hari. Hubungan antara skor LODS dengan mortalitas dianalisis dengan regresi logistik sederhana, sementara hubungan antara bersihan laktat dan mortalitas dinilai dengan uji chi square. Kemampuan diskriminasi keduanya dinilai dengan analisis kurva ROC sementara kemampuan kalibrasi dinilai dengan uji goodness of fit Hosmer-Lemeshow. Kemampuan diagnostik dinilai dengan menghitung sensitivitas, spesifisitas, PPV, NPV, LR positif, serta LR negatif. Kemampuan diskriminasi, kalibrasi, serta diagnostik diantara skor LODS dan bersihan laktat kemudian dibandingkan.

Hasil: Dari 388 subjek yang dianalisis, didapatkan bersihan laktat memiliki diskriminasi lemah (AUC 0,597), kalibrasi lemah (Uji Hosmer-Lemeshow $p < 0,001$), sensitivitas 65% (IK95% 48,3% - 79,3%), spesifisitas 54,3% (IK95% 48,9% - 59,6%), PPV 14,1% (IK95% 11,2% - 17,4%), NPV 93,1% (IK95% 89,7% - 95,4%), LR positif 1,420 (IK95% 1,10 – 1,84), dan LR negatif 0,640 (IK95% 0,42 – 0,99), dalam memprediksi mortalitas pasien dalam 30 hari di UPI RSCM. Sementara Skor LODS memiliki diskriminasi baik (AUC 0,79), kalibrasi baik (Uji Hosmer-Lemeshow $p = 0,818$), sensitivitas 77,5% (IK95% 64,6% - 90,4%), spesifisitas 63,8% (IK95% 58,8% - 68,8%), PPV 19,7% (IK95% 13,4% - 25,9%), NPV 96,1% (IK95% 93,6% - 98,6%), LR positif 2,140 (IK95% 1,72 – 2,66), dan LR negatif 0,353 (IK95% 0,20 – 0,63), dalam memprediksi mortalitas pasien dalam 30 hari di UPI RSCM.

Kesimpulan: Performa bersihan laktat dari segi kemampuan diskriminasi, kalibrasi, atau diagnostik tidak lebih baik dari skor LODS dalam memprediksi mortalitas pasien dalam 30 hari di UPI RSCM.

.....Backgrounds: The mortality rate of ICU patients is higher than other inpatients. The mortality predicting tools of ICU patients can help a physician stratify the risk and make the clinical decision in patient management. The LODS score is one of the tools that has been proven better than predictor instruments currently used at RSCM ICU. However, the component of the LODS score requires an expensive examination, so it is difficult to apply, especially to patients without health insurance. Lactate clearance is a cheaper alternative and was found to have a good predictive ability of mortality in previous studies.

Objective: This study aimed to compare the predictor ability of LODS scores with lactate clearance on 30-days-patient-mortality treated at RSCM ICU.

Method: This was a cohort retrospective study using the medical records of RSCM ICU patients who were treated between August 2015 – April 2018. The data were demographic characteristics, first-day LODS score, initial lactate, lactate in 6-24 hours, and 30-days-patient-mortality. The relationship between LODS scores and mortality was analyzed with simple logistic regression, while the chi-square test assessed the relationship between lactate clearance and mortality. Discrimination ability was assessed by ROC curve analysis, while the Hosmer-Lemeshow goodness of fit test assessed calibration ability. Diagnostic ability was assessed by calculating sensitivity, specificity, PPV, NPV, positive LR, and negative LR. Discrimination, calibration, and diagnostic capabilities between LODS scores and lactate clearance were then compared between groups.

Results: From 388 subjects analyzed, lactate clearance was found to have weak discrimination (AUC 0.597), weak calibration (Hosmer-Lemeshow test $p < 0.001$), sensitivity 65% (95% CI 48.3% – 79.3%), specificity 54.3% (95% CI 48.9% – 59.6%), PPV 14.1% (95% CI 11.2% – 17.4%), NPV 93.1% (95% CI 89.7% – 95.0.4%), positive LR 1.420 (95% CI 1.10 – 1.84), and negative LR 0.640 (95% CI 0.42 – 0.99), in predicting patient mortality within 30 days at RSCM ICU. Meanwhile, the LODS score had good discrimination (AUC 0.79), good calibration (Hosmer-Lemeshow test $p = 0.818$), sensitivity 77.5% (95% CI 64.6% – 90.4%), specificity 63.8% (95% CI 58.8% – 68.8%), PPV 19.7% (95% CI 13.4% – 25.9%), NPV 96.1% (95% CI 93.6% – 98.6%), positive LR 2.140 (95% CI 1.72 – 2.66), and negative LR 0.353 (95% CI 0.20 – 0.63), in predicting patient mortality within 30 days at RSCM ICU.

Conclusion: Lactate clearance performance in terms of discriminatory ability, calibration, or diagnostic performance was not better than the LODS score in predicting patient mortality within 30 days at RSCM ICU.