Validasi Skor Modified Sequential Organ Failure Assessment dan Nilai Tambah Kadar Glukosa Darah sebagai Prediktor Mortalitas 28 Hari pada Pasien Penyakit Kritis Tanpa Riwayat Diabetes Melitus = Validation of Modified Sequential Organ Failure Assessment Score and Added Value of Admission Blood Glucose as Predictors of 28 Days Mortality in Non Diabetic Critically Ill Patients

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Abstrak

Latar belakang: Skor MSOFA telah dikembangkan sebagai critical care triage pada rumah sakit dengan sumber daya terbatas. Di Indonesia telah diteliti performa MSOFA sebagai prediktor mortalitas terhadap pasien penyakit kritis namun terbatas pada pasien bedah. Hasil evaluasi prediksi mortalitas MSOFA menunjukkan kemampuan prediksi mortalitas yang cenderung rendah. Penambahan variabel lain pada skor MSOFA untuk meningkatkan prediksi mortalitas perlu diteliti lebih lanjut. Hiperglikemia pada penyakit kritis tanpa riwayat diabetes melitus (hiperglikemia akibat stres) berdasarkan penelitian merupakan faktor risiko independen terhadap mortalitas.
Tujuan: Melakukan validasi MSOFA serta nilai tambah kadar glukosa darah sebagai prediktor mortalitas pasien penyakit kritis tanpa riwayat diabetes melitus.
Metode penelitian: Penelitian prospektif kohort pada pasien penyakit kritis medis maupun bedah di RSUPN Cipto Mangunkusumo selama periode Agustus hingga Desember 2013. Pasien dilakukan anamnesis, pemeriksaan fisik, saturasi oksigen perifer, glasgow coma scale, pemeriksaan laboratorium kadar kreatinin, pemeriksaan glukosa darah sewaktu serta A1C dalam 24 jam pertama perawatan. Outcome penelitian ini adalah mortalitas dalam 28 hari. Analisis statistik menggunakan tes Hosmer-Lemeshow, plot kalibrasi serta kurva ROC.
Hasil: Subjek penelitian sebanyak 150 pasien. Mortalitas terjadi pada 52 pasien (34,67%) dengan sepsis sebagai masalah terbanyak. Kalibrasi MSOFA menunjukkan Hosmer-Lemeshow x2=13,748(p=0,056). Diskriminasi MSOFA menunjukkan AUC 0,83 (IK 95% 0,76-0,89). Hiperglikemia terjadi pada 79 pasien (52,67%). Penambahan kadar glukosa darah pada MSOFA tidak menunjukkan peningkatan AUC.
Simpulan: Validasi MSOFA menunjukkan kalibrasi dan diskriminasi yang baik pada pasien penyakit kritis baik medis maupun bedah. Penambahan kadar glukosa darah pada skor MSOFA tidak meningkatkan kemampuan prediksi mortalitas.
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Background: MSOFA, a simple scoring system, has been developed as a critical care triage in centers with limited resources. Previous study have evaluated MSOFA’s performance but limited only in surgical critically ill patients which showed a low precision in predicting mortality. Addition of another variable to improve MSOFA’s performance merits further investigation. Hyperglycemia in critically ill patients without previous history of diabetes (stress hyperglycemia) has been shown to be an independent risk factor of mortality.
Objective: to evaluate MSOFA scoring system’s performance and addition of admission blood glucose test to predict mortality in critically ill patient without previous history of diabetes.

Methods: This was a prospective cohort study recruiting medical and surgical critically ill patients admitted to Cipto Mangunkusomo Hospital during a period of August to December 2013. History taking, physical examination, peripheral oxygen saturation, Glasgow Coma Scale, creatinine, blood glucose and A1C were obtained within 24 hour of admission. The outcome was mortality within 28 days. Performance of MSOFA was evaluated with the Hosmer-Lemeshow goodness of fit test and measuring the AUC.
Results: 150 patients completed the study protocols. Mortality was observed in 52 patients (34,67%) with sepsis being the most prevalent diagnosis. Calibration of MSOFA showed a Hosmer-Lemeshow test $x2=13.748$ ($p = 0.056$). Receiver Operating Curve (ROC) of MSOFA showed an AUC of 0,83 (95% CI 0,76-0,89). Stress hyperglycemia was evident in 79 patients (52,67%) recruited in this study. Addition of blood glucose to MSOFA scoring system did not show improvement in MSOFA's performance.
Conclusion: We have validated MSOFA in this study which showed good calibration and discrimination in both medical and surgical critically ill patients. Adding blood glucose to MSOFA scoring system did not improve MSOFA's performance.