Perubahan skor pSOFA hari ke-7 sebagai prediktor mortalitas hari ke-28 pasien sepsis anak = Seven days changes of pSOFA as 28 days mortality predictors of pediatric septic patient

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Abstrak

Latar belakang. Sepsis merupakan salah satu penyebab utama kematian anak di seluruh dunia. Penilaian SEPSIS-3 merekomendasikan sistem skoring SOFA sebagai alat untuk mendeteksi sepsis dan memrediksi kematian. Hingga saat ini masih digunakan PELOD-2 dalam mendeteksi sepsis dan memrediksi kematian walaupun sudah dikeluarkan adaptasi SOFA pada populasi anak berupa pSOFA.
Tujuan. Mengetahui prevalensi sepsis anak di RSCM dan faktor yang berpengaruh terhadap kematian akibat sepsis berdasarkan skoring PELOD-2 dan pSOFA. Mengetahui sensitivitas, spesifisitas, positive predictive value, dan negative predictive value PELOD-2 dan pSOFA. Mengetahui batas nilai (cut-off) perubahan pSOFA dalam 7 hari perawatan sebagai prediktor mortalitas hari ke-28. Mengetahui sensitivitas, spesifisitas, positive predictive value, dan negative predictive value batas nilai (cut-off) perubahan pSOFA dalam 7 hari perawatan sebagai prediktor mortalitas ke-28 pada anak sepsis di PICU.
Metode. Penelitian uji prognostik dengan desain kohort prospektif pada pasien anak yang dirawat di PICU RSCM Jakarta dengan diagnosis sepsis.
Hasil. Prevalensi sepsis sebesar 20,4%. Dari 45 subyek penelitian, rerata usia adalah 73,24 bulan (SD 66,9). Status gizi yang paling banyak adalah status gizi buruk (35,6%) dan gizi kurang (28,9%). Sumber infeksi yang paling banyak adalah infeksi saluran pernapasan. Diagnosis saat masuk yang paling banyak adalah syok sepsis, pneumonia, COVID-19, dan gastroenteritis. Jumlah pasien yang meninggal adalah 15 subyek (33,3%). Kriteria skoring yang bermakna secara statistik ($p<0,05$) dalam memprediksi kematian adalah status gizi buruk, SpO2:FiO2, trombosit, blirubin dan penggunaan ventilasi invasif. Sensitivitas pSOFA lebih baik dibandingkan dengan PELOD-2 (93,75% vs. 25%), sedangkan spesifisitas PELOD-2 lebih baik dibandingkan dengan pSOFA (96,6% vs. 10,34%). Nilai batas (cut-off) perubahan pSOFA dalam 7 hari perawatan sebagai prediktor mortalitas hari ke-28 adalah 47,7%. Nilai cut-off 47,7% mempunyai sensitivitas 61,9%, spesifisitas 77,7%, nilai prediksi positif 81,2%, dan nilai prediksi negatif 46,6% dengan nilai RR 5,6875.
Kesimpulan. Faktor yang berperan terhadap kematian akibat sepsis adalah PaO2:FiO2, SpO2:FiO2, kadar trombosit, kadar bilirubin, GCS, PaCO2, dan ventilasi invasive. Untuk mendiagnosis sepsis, PELOD-2 lebih baik dibandingkan pSOFA, sedangkan untuk menyaring (uji tapis) sepsis, pSOFA dinilai lebih unggul dan dapat melihat progresifitas penyakit. Nilai batas (cut off) perubahan pSOFA dalam 7 hari perawatan sebagai prediktor mortalitas hari ke-28 adalah 47,7% Nilai cut-off 47,7% mempunyai sensitivitas 61,9%, spesifisitas 77,7%, nilai prediksi positif 81,2%, dan nilai prediksi negatif 46,6% dengan nilai OR 5,6875.
Background. Sepsis is one of the leading causes of childhood mortality worldwide. The SEPSIS-3 assessment recommends the SOFA scoring system as a tool for detecting sepsis and predicting mortality. Until now, PELOD-2 is still being used to detect sepsis and predict mortality even though pSOFA has been promoted as the pediatric adaptation of SOFA scoring.
Objectives. To determine the prevalence of sepsis in children at RSCM and the factors that influence

mortality from sepsis based on PELOD-2 and pSOFA scoring. Determine the sensitivity, specificity, positive predictive value, and negative predictive value of PELOD-2 and pSOFA. Determine the cut-off value for pSOFA changes in 7 days as a predictor of mortality on day 28; and to determine the sensitivity, specificity, positive predictive value, and negative predictive value of this cut-off value as predictors of mortality in the 28th day of hospital stay in septic children in the PICU.
Methods. A prognostic study with a prospective cohort design in pediatric patients admitted to the PICU of RSCM Jakarta with a diagnosis of sepsis.
Results. Sepsis prevalence was 20,4%. Of the 45 study subjects, the mean age was 73.24 months (SD 66.9). The most common nutritional status was severe malnutrition (35.6%) and undernutrition (28.9%). The most common source of infection was respiratory tract infection. The most common diagnoses at admission were septic shock, pneumonia, COVID-19, and gastroenteritis. Mortality rate was 33.3%. The scoring criteria that were statistically significant ($p<0.05$) in predicting mortality were severe and undernutrition, SpO2:FiO2, platelet level, bilirubin level, and the use of invasive ventilation. Sensitivity of pSOFA was better than that of PELOD-2 (93.75% vs. 25%), while specificity of PELOD-2 was better than that of pSOFA (96.6% vs. 10.34%). The cut-off value for pSOFA changes in 7 days of treatment as a predictor of mortality on day 28 was 47.7%. The cut-off value of 47.7% had a sensitivity of 61.9%, a specificity of 77.7%, a positive predictive value of 81.2%. , and a negative predictive value of 46.6% with an OR value of 5.6875.
Conclusions. Factors that contribute to sepsis mortality were SpO2:FiO2, platelet levels, bilirubin levels, and invasive ventilation. For diagnosing sepsis, PELOD-2 was better than pSOFA. Meanwhile, to screen for sepsis, pSOFA was considered superior and is able to see disease progression. The cut-off value for pSOFA changes in 7 days of treatment as a predictor of mortality on day 28 was 47.7%. The cut-off value of 47.7% had a sensitivity of 61.9%, a specificity of 77.7%, a positive predictive value of 81.2%. , and a negative predictive value of 46.6% with an OR value of 5.6875.