Peran hitung jenis limfosit dan monosit sebagai prediktor kebocoran plasma pada infeksi dengue = The role of differential count of lymphocytes and monocytes as predictor of plasma leakage in dengue infection

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Abstrak

Latar belakang. Salah satu penentu manifestasi klinis dengue berat adalah kebocoran plasma. Limfosit dan monosit berperan dalam patogenesis kebocoran plasma infeksi dengue sehingga berpotensi sebagai prediktor kebocoran plasma.
Tujuan. Menentukan kemampuan hitung jenis limfosit dan monosit demam hari kedua sebagai prediktor kebocoran plasma pada fase kritis infeksi dengue.
Metode. Desain kohort retrospektif pasien rawat inap di RSUPN Cipto Mangunkusumo, RSUP Persahabatan dan RSPAD Gatot Soebroto dari tahun 2010 2015, memenuhi kriteria inklusi: berusia > 15 tahun; didiagnosis dengue menurut WHO 1997; dikonfirmasi pemeriksaan NS-1/pemeriksaan serologis anti dengue; memiliki data darah perifer lengkap dan hitung jenis mulai demam hari ke-2; USG abdomen, dan/atau albumin pada fase kritis. Dilakukan analisis Reciever Operating Characteristic Curves (ROC curve) dengan interval kepercayaan (IK) 95% dan multivariat regresi logistik untuk memperoleh model prognostik.

Hasil. Terdapat 63 subjek dianalisis. Insidens kebocoran plasma 49%. Nilai absolut limfosit dan nilai absolut monosit demam hari ke-2 berpotensi menjadi prediktor kebocoran plasma pada fase kritis dengan AUC 0,65 dan 0,64. Titik potong optimal nilai absolut limfosit dan nilai absolut monosit yang berpotensi sebagai prediktor kebocoran plasma sebesar 1323 dan 770. Nilai absolut limfosit memiliki sensitivitas 90%, spesifisitas 16%. Nilai absolut monosit memiliki sensitivitas 94%, spesifisitas 34%. Model prognostik nilai absolut monosit dan persentase limfosit meningkatkan AUC menjadi 0,723.
Simpulan. Kemampuan prediksi kebocoran plasma nilai absolut limfosit dan nilai absolut monosit demam hari kedua lemah. Namun kemampuan tersebut ditingkatkan menjadi sedang oleh model prognostik yang melibatkan persentase limfosit dan nilai absolut monosit.
.....Background. The severity of dengue infection was determined by plasma leakage. Lymphocytes and monocytes played an important role in the pathogenesis of plasma leakage in dengue infection so they potentially used as predictors for plasma leakage in a critical phase of dengue infection.
Aim. Determined the percentage and absolute number of lymphocytes and monocytes measured on the second day of fever as a predictors for plasma leakage in a critical phase of dengue infection.
Method. The research was retrospective cohort study of inpatients at Cipto Mangunkusumo Hospital, Persahabatan General Hospital and Gatot Subroto Military Hospital Jakarta from 2010 2015. The inclusion criteria: age > 15 years, suffering from dengue infection according to the diagnostic criteria of WHO in 1997, confirmed by examination of NS-1 or serological anti-dengue, peripheral blood count and differential leucocyte count during treatment from second day of fever, abdominal ultrasound, and / or albumin in the critical phase. Analyses were performed using ROC curve. Multivariate analysis was performed to elicit prognostic models.

Results. We determined 63 subjects. The incidence of plasma leakage was 49%. Absolute number of lymphocytes and monocytes on second day of fever were potentially useful as predictors for plasma leakage. The AUC was 0.65 and 0.644. The optimal cut-off point for absolute number of lymphocytes were 1323, the sensitivity was 90% and the specificity 16%. The cut-off for absolute number of monocytes was 770, the sensitivity was 94%, specificity 34%. We found optimal prognostic model which include percentage of lymphocytes and absolute number of monocytes. It could increase the AUC until 0,723.
Conclusion. The absolute number of lymphocytes and monocytes on second day of fever in dengue infections were potentially useful as predictors for plasma leakage in a critical phase of dengue infection. Predictive capability could be increased by prognostic model which include percentage of lymphocytes and absolute number of monocytes as predictors.