

Hubungan albumin serum awal perawatan dengan perbaikan klinis infeksi ulkus kaki diabetik di rumah sakit di Jakarta = The association between serum albumin level at early hospitalization and clinical improvement in patients with diabetic foot ulcer infection hospitalized in Jakarta

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Abstrak

Latar Belakang: Ulkus kaki diabetik terinfeksi merupakan kasus DM yang paling banyak dirawat di RS, berhubungan dengan morbiditas, mortalitas, biaya yang tinggi dan bersifat multifaktorial. Salah satu faktor yang berpengaruh adalah albumin. Belum ada penelitian yang secara langsung menghubungkan konsentrasi albumin serum awal perawatan dengan perbaikan klinis infeksi ulkus kaki diabetik. Belum ada batasan mengenai konsentrasi albumin yang dapat mempengaruhi perbaikan klinis infeksi ulkus kaki diabetik.

Tujuan: Mendapatkan data mengenai konsentrasi albumin serum awal perawatan dan hubungannya dengan perbaikan klinis infeksi ulkus kaki diabetik.

Metodologi: Penelitian dengan desain kohort prospektif terhadap 71 pasien diabetes dengan ulkus kaki terinfeksi yang dirawat inap di RSUPNCM, RSPADGS atau RSP pada kurun waktu April-Agustus 2014. Diagnosis dan klasifikasi ulkus kaki diabetik terinfeksi menggunakan kriteria IDSA. Data klinis dan albumin serum diambil dalam 24 jam pertama perawatan dan diikuti dalam 21 hari perawatan dengan terapi standar untuk dilihat perbaikan klinis infeksi ulkus kaki diabetik. Perbedaan rerata konsentrasi albumin antara subjek yang mengalami perbaikan klinis infeksi dan yang tidak, diuji dengan uji t tidak berpasangan dengan batas kemaknaan $p < 0,05$. Untuk analisis multivariat, digunakan analisis regresi logistik dengan koreksi terhadap variabel perancu. Kemudian dinilai kemampuan konsentrasi albumin serum dalam memprediksi perbaikan klinis dengan membuat kurva ROC dan menghitung AUC. Lalu ditentukan titik potong konsentrasi albumin serum dengan sensitifitas dan spesifisitas terbaik pada penelitian ini.

Hasil: Rerata konsentrasi albumin pada kelompok yang tidak mengalami perbaikan klinis infeksi ulkus kaki diabetik dan yang perbaikan, masing-masing sebesar 2,47 (0,45) g/dL dan 2,94 (0,39) g/dL ($p < 0,001$). Setelah penambahan variabel perancu, didapatkan adjusted OR untuk setiap penurunan konsentrasi albumin 0,5 g/dL adalah 4,81 (IK95% 1,80;10,07). Konsentrasi albumin kurang dari 2,66 g/dL dapat memprediksi bahwa ulkus kaki diabetik terinfeksi tidak akan mengalami perbaikan dalam 21 hari perawatan dengan sensitivitas 75% dan spesifisitas 69,6%.

Kesimpulan: Terdapat hubungan antara konsentrasi albumin serum awal perawatan dengan perbaikan klinis infeksi ulkus kaki diabetik. Konsentrasi albumin serum kurang dari 2,66 g/dL dapat memprediksi ulkus kaki diabetik terinfeksi tidak akan membaik dengan sensitivitas 75% dan spesifisitas 69,6%.

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Background: Infected diabetic foot ulcer is the most common case of diabetes mellitus (DM) for hospitalization. It is associated with high morbidity, mortality, expensive cost of treatment and has multifactorial aspects. Albumin is considered as one of the factors associated with the disease. No studies have been conducted to demonstrate direct association between serum albumin level at early hospitalization and clinical improvement of diabetic foot ulcer infection. Moreover, no standardized value on albumin level

has been set, particularly that may influence the clinical improvement of diabetic foot ulcer infection.

Objective: To obtain data about serum albumin level at early hospitalization and to recognize its association with clinical improvement of diabetic foot ulcer infection.

Methods: A prospective cohort study was conducted. The study evaluated 71 patients with infected diabetic foot ulcers who were hospitalized at Cipto Mangunkusumo Hospital, Gatot Soebroto Hospital or Persahabatan Hospital between April and August 2014. Diagnosis and classification of infected diabetic foot ulcers were made using the IDSA criteria. Clinical data and serum albumin level were obtained within the first 24 hours of hospitalization and the data were followed within 21 days of hospitalization with standard treatment in order to evaluate any clinical improvement of diabetic foot ulcer infection. Unpaired t test with significance value of $p < 0,05$ was used to show the difference of the mean of serum albumin level between subjects with clinical improvement and without clinical improvement of diabetic foot ulcer infection. Afterwards, a logistic regression analysis with adjustment to the confounding variables was used. ROC curve and AUC were used to analyze the capacity of serum albumin level in predicting clinical improvement. Then, a cut-off point of serum albumin level with the best sensitivity and specificity was determined to predict the clinical improvement of diabetic foot ulcer infection.

Results: The mean of serum albumin concentration of the group with clinical improvement and without improvement were 2,47 (0,45) g / dL and 2,94 (0,39) g / dL ($p < 0,001$) respectively. After adjusting the confounding variables, we found that serum albumin level had an adjusted OR of 4,81 (95% CI 1,80;10,07) for every decrease in albumin level of 0,5 g / dL. Serum albumin level of less than 2,66 g/dL had sensitivity of 75% and specificity of 69,6% in predicting that the infected diabetic foot ulcers would not improve within 21 days of hospitalization.

Conclusions: There is a association between serum albumin level at early hospitalization and clinical improvement of diabetic foot ulcer infection. Serum albumin level of less than 2,66 g/dL can predict that the infected diabetic foot ulcers will not improve with sensitivity of 75% and specificity of 69,6%.