

# Hubungan Nilai Kadar Albumin dan Fungsi Ginjal dengan Penyembuhan Luka pada Pasien Luka Diabetik yang Diputuskan Amputasi Berdasarkan Skor Wifl = Correlation Between Albumin and Renal Function Marker with Post-Amputation Wound Healing in Diabetic Foot Ulcer Patients

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## Abstrak

Latar belakang. Berbagai studi telah berhasil menemukan faktor-faktor yang mempengaruhi penyembuhan luka khususnya terkait fungsi ginjal dan albumin. Akan tetapi, belum terdapat studi yang mengevaluasi hubungan fungsi ginjal dan albumin terkhusus pada penyembuhan luka pasca amputasi pasien luka diabetik. Metode. Penelitian ini merupakan studi kohort retrospektif, yang dilakukan pada bulan Oktober–Desember 2022. Pasien ulkus kaki diabetik yang telah mendapatkan tindakan amputasi di RSUPN Cipto Mangunkusumo, yang mana keputusan amputasinya diambil berdasarkan skor Wifl [berada pada zona merah (risiko amputasi tinggi) skor Wifl yang dipetakan berdasarkan derajat luka, iskemia, dan infeksi] diinklusi ke dalam penelitian. Variabel yang diteliti meliputi kadar albumin, ureum, kreatinin, laju filtrasi glomerulus (LFG), kesembuhan luka, usia, status gizi, terapi insulin, merokok, hipertensi, durasi penyakit DM, dan onset luka.

Hasil. Peneliti mengikutsertakan 61 pasien luka kaki diabetik yang menjalani tindakan amputasi di RSUPN Dr. Cipto Mangunkusumo, yang terdiri dari 23 (37,7%) pasien laki-laki dan 39 (63,9%) pasien dengan status gizi berlebih. 65,6% pasien mengalami reepitelisasi sempurna dalam 28 hari pasca tindakan amputasi. Kadar albumin, ureum, dan kreatinin pasien ditemukan sebesar 2,56 (1,11–4,98) g/dL, 71,00 (0,56–210) U/L, dan 1,40 (0,50– 11,50) U/L. LFG ditemukan sebesar 52,60 (4,10–117,30) mL/menit. Kadar albumin yang lebih tinggi ( 2,605 g/dL) dan kadar ureum yang lebih rendah (< 71,6 U/L) ditemukan berhubungan dengan probabilitas penyembuhan luka yang lebih tinggi ( $p < 0,050$ ).

Simpulan. Kadar albumin ditemukan lebih tinggi, sementara kadar ureum ditemukan lebih rendah pada kelompok luka sembuh pasien luka kaki diabetik 28 hari pasca amputasi.

.....Background. Various studies have succeeded in finding factors that affect wound healing, especially related to kidney function and albumin. However, there have been no studies evaluating the relationship between kidney function and albumin, especially in post-amputation wound healing in diabetic wound patients.

Methods. This is a retrospective cohort study, conducted in October–December 2022. Diabetic foot ulcer patients who have received an amputation procedure at Cipto Mangunkusumo Hospital, where the decision to amputation is made based on the Wifl score [is in the red zone (high risk of amputation) Wifl scores charted according to degree of injury, ischemia, and infection] were included in the study. The variables studied included albumin, urea, creatinine, glomerular filtration rate (GFR), wound healing, age, nutritional status, insulin therapy, smoking, hypertension, duration of diabetes mellitus, and onset of injury.

Results. We included 61 patients with diabetic foot injuries who underwent amputation at RSUPN Dr. Cipto Mangunkusumo, which consisted of 23 (37.7%) male patients and 39 (63.9%) patients with excess nutritional status. 65.6% of patients experienced complete re-epithelialization within 28 days after the

amputation. The patient's albumin, urea, and creatinine levels were found to be 2.56 (1.11–4.98) g/dL, 71.00 (0.56–210) U/L, and 1.40 (0.50–11.50) U/L. GFR was found to be 52.60 (4.10–117.30) mL/minute. Higher albumin levels (2.605 g/dL) and lower urea levels (< 71.6 U/L) were found to be associated with a higher probability of wound healing ( $p < 0.050$ ).

Conclusion. Albumin levels were higher, while urea levels were lower in the group of healed wounds of patients with diabetic foot ulcer in 28 days following the amputation surgery.