

# Hubungan penanda infeksi Leukosit, LED, dan CRP dengan perubahan luas luka kaki diabetes wagner 2 dan 3 di RSCM, Jakarta = Relation between Leukocyte, ESR, and CRP as Infection Markers with Changes Diabetic Foot Ulcers Area Wagner 2 and 3 at Cipto Mangunkusumo General Hospital (CMGH), Jakarta

Jimmy Candra Putra, author

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## Abstrak

Latar belakang: Pada 2012, angka insiden tahunan kaki diabetes yang mengalami ulkus dan gangren diperkirakan sekitar 2%-5% dari populasi umum. Sekitar 15% pasien dengan kaki diabetes dapat mengalami amputasi pada ekstremitas bawah. Kaki diabetes adalah masalah kesehatan yang sangat sulit untuk mengalami penyembuhan. Hal ini semakin diperparah dengan kondisi infeksi yang berat dan mengganggu proses regenerasi jaringan, sehingga harus dilakukan amputasi untuk mencegah penyebaran infeksi. Infeksi yang tidak terkontrol dengan baik dapat menghambat seluruh fase penyembuhan luka.

Metode: Studi Potong Lintang, subjek penelitian adalah pasien luka kaki diabetes yang berobat ke IGD dan poliklinik RSCM selama bulan Agustus-Desember 2019. Analisis statistik dengan uji hipotesis korelatif antara perubahan nilai penanda infeksi dan perubahan luas luka. Jika sebaran data normal menggunakan uji Pearson dan jika sebaran data tidak normal menggunakan uji Spearman. Pengujian dilakukan dengan menggunakan piranti lunak SPSS version 20 for Windows.

Hasil : Selama periode Agustus 2019 sampai Desember 2019 terdapat 30 subjek yang memenuhi kriteria inklusi dan eksklusi. Terdapat 14 subjek (46,77%) laki-laki dan 16 subjek (53,3%) perempuan. Dari diagnosis, terdapat 20 subjek (66,3%) ulkus pedis dan sebanyak 10 subjek (33,3%) gangren pedis. Dari penelitian ini didapatkan rata-rata dan standar deviasi dari perubahan nilai ABI  $0,9080 \pm 0,09998$ , perubahan jumlah leukosit sebesar  $4899.87 \pm 4512.048$ , perubahan nilai LED  $1.8333 \pm 1.14721$ , perubahan nilai CRP  $2.6500 \pm 1.70228$ , perubahan luas luka  $10.2727 \pm 6.51246$ , dan albumin  $2.9487 \pm 3.9207$ . Dari analisis korelatif, antara perubahan jumlah leukosit dengan perubahan luas luka ( $p=0,058$ ,  $r=0,350$ ), perubahan nilai LED dengan perubahan luas luka ( $p=0,034$ ,  $r=0,388$ ), dan perubahan nilai CRP dengan perubahan luas luka ( $p=0,008$ ,  $r=0,477$ )

Kesimpulan: Terdapat hubungan yang signifikan antara perubahan nilai LED, nilai CRP dengan perubahan luas luka serta memiliki korelasi yang sedang. Tidak terdapat hubungan yang signifikan antara perubahan jumlah leukosit dengan perubahan luas luka serta memiliki korelasi sedang.

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Background: In 2012, the annual incidence rate of diabetic foot ulcers and gangrene is estimated to be around 2% -5% of the general population. About 15% of patients with diabetic foot can have an amputation in the lower limb. Diabetic foot is a health problem that is very difficult to experience healing. This is further exacerbated by severe infection conditions and disrupt the process of tissue regeneration, so amputation must be done to prevent the spread of infection. Infection that is not well controlled can inhibit the entire phase of wound healing.

Methods: A cross-sectional study, research subjects were diabetic foot ulcers patients who went to the emergency room and the CMGH polyclinic during August-December 2019. Statistical analysis with a

correlative hypothesis test between changes in infection markers and changes in wound area. If the data distribution is normal use the Pearson test and if the data distribution is not normal use the Spearman test. The test was carried out using SPSS version 20 for Windows software.

Results: During the period August 2019 to December 2019, there were 30 subjects met the inclusion and exclusion criteria. There were 14 subjects (46.77%) male and 16 subjects (53.3%) female. From the diagnosis, there were 20 subjects (66.3%) pedis ulcers and 10 subjects (33.3%) diabetic gangrene. From this study, the average and standard deviation of changes in ABI values  $0.9080 \pm 0.09998$ , changes in the number of leukocytes amounted to  $4899.87 \pm 4512.048$ , changes in ESR values  $1.8333 \pm 1.14721$ , changes in CRP values  $2.6500 \pm 1.70228$ , changes in wound area  $10.2727 \pm 6,51246$ , and albumin  $2.9487 \pm .39207$ . From the correlative analysis, between changes in leukocyte counts with changes in wound area ( $p = 0.058$ ,  $r = 0.350$ ), changes in ESR values with changes in wound area ( $p = 0.034$ ,  $r = 0.388$ ), and changes in CRP values with changes in wound area ( $p = 0.008$ ,  $r = 0.477$ )

Conclusion: There is a significant relationship between changes in ESR values, CRP values with changes in wound area and have a moderate correlation. There is no significant relationship between changes in the number of leukocytes with changes in wound area and has a moderate correlation.