"HUBUNGAN KADAR GLUKOSA DARAH DAN JUMLAH LIMFOSIT DENGAN DERAJAT INFEKSI LUKA PADA PASIEN ULKUS DIABETIKUM DI RSUD KARSA HUSADA BATU DAN RSUD NGUDI WALUYO WLINGI "

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ABSTRACT

Diabetic ulcer is one of the chronic complications of diabetes mellitus that often leads to severe infection and even amputation. Blood glucose levels and lymphocyte counts are suspected to play an important role in determining the degree of wound infection. This study aims to analyze the relationship between blood glucose levels and lymphocyte counts with the degree of wound infection in patients with diabetic ulcers. The research design used a cross-sectional method with purposive sampling, involving 35 diabetic ulcer patients. The research instrument was an observation sheet assessing the degree of infection in diabetic foot ulcers. The results showed a significant relationship between blood glucose levels and the degree of wound infection ($p = 0.001$; $r = 0.704$), indicating a strong and direct correlation. In addition, lymphocyte counts were also significantly related to the degree of wound infection ($p = 0.001$; $r = -0.753$), showing a strong but inverse correlation. Chronic hyperglycemia causes microangiopathy characterized by thickening of capillary walls, reduced elasticity, and impaired blood flow to peripheral tissues. As a result, the supply of oxygen and nutrients to the skin and motor nerves becomes suboptimal, making the skin fragile, easily damaged, and motor function impaired. Furthermore, impaired blood flow leads to tissue hypoxia, which worsens cellular damage and creates an ideal environment for bacterial growth. Under these conditions, active inflammation occurs, marked by an increase in neutrophils. Conversely, lymphocytes as part of the adaptive immune system experience a decrease due to apoptosis triggered by inflammatory mediators, redistribution to infected tissues, and impaired proliferation caused by systemic stress.

Keywords: Blood glucose levels, lymphocyte count, wound infection, diabetic ulcer, degree of infection