

Neutrophil to Lymphocyte Ratio Exhibits a Relationship with the Occurrence of Microvascular Complications Among Type 2 Diabetes Mellitus Patients

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The systemic disorder, Diabetes Mellitus (DM) can eventually lead to microvascular complications as a result of persistent subclinical vascular inflammation. The literature has highlighted the use of haematological indices as predictors of inflammation. Thus, this study aims to investigate the relationship between Neutrophil Lymphocyte Ratio (NLR) and microvascular complications among type 2 DM patients attending Diabetic Centre, Teaching Hospital Jaffna. A laboratory-based cross-sectional study was carried out among 235 already diagnosed type 2 DM patients selected on systematic sampling. Venous blood samples were collected to assess the individual NLR using manual differential count while the history of prevailing microvascular complications namely diabetic retinopathy, diabetic nephropathy, and diabetic neuropathy was collected by referring to respective patients' clinical records. Among 235 subjects 131(55.7%) were female and 104(44.3%) were male, with a mean age of 56.82 ± 11.65 years. The occurrence of retinopathy, neuropathy, and nephropathy in the study group was 19.6%, 31.9%, and 32.3% respectively. When compared to the mean NLR in individuals without retinopathy (1.641), without nephropathy (1.525), and without neuropathy (1.489); the mean NLR was higher in retinopathy (1.999), nephropathy (2.101), and neuropathy (2.186) groups. These NLR differences were statistically significant $p=0.007$, $p<0.001$, and $p<0.001$ respectively. Receiver operating characteristic (ROC) curve analysis depicted that NLR was a better predictor of diabetic neuropathy (AUC=0.797) followed by nephropathy (AUC=0.758), and retinopathy (AUC=0.633). There is a significant relationship between NLR and the occurrence of microvascular complications among type 2 DM patients.

Keywords: diabetes mellitus, neutrophil to lymphocyte ratio, microvascular complication