0038
EVALUATION OF NEUTROPHIL-LYMPHOCYTE RATIO IN DIABETES AND CORONARY ARTERY DISEASE: A CASE CONTROL STUDY FROM INDIA

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Abstract
Introduction

Systemic inflammation leads to the development of both type 2 diabetes mellitus (DM) and coronary artery disease (CAD).

Methodology

A case-control study of 120 participants was conducted in a tertiary-care center in Northern India. Study participants comprised four groups; 30 healthy controls, 30 patients with DM, 30 with CAD, and 30 with concomitant DM and CAD. Groups were age and sex-matched. CAD was diagnosed by coronary angiography when ≥ one lesion with >50% stenosis was present. Anthropometric measurements, complete hemogram, neutrophil-lymphocyte ratio (NLR), HbA1c, lipid profile, highly-sensitive C-Reactive Protein (CRP), and uric acid levels were measured.

Results

The mean age was 61.26 ± 7.61, and 80 (66.6%) were male. Multinomial logistic regression analysis was used to determine the association of different parameters with disease. After adjusting for other parameters including body-mass index, HbA1c levels, lipid profile, hsCRP, and uric acid, NLR was an independent predictor of DM vs. Controls (Odds Ratio) 3.802 [1.457-9.917], CAD vs. Controls 9.807 [3.556-27.050], and Both vs. Controls 13.448 [4/725-38.279]. Uric acid was not a significant predictor. hsCRP was an independent predictor of only concomitant CAD and DM vs. Controls 1.558 [1.053-2.303]. A clear stepwise increase in NLR was observed across the four groups: lowest among healthy controls, followed by the DM group, CAD group, and the highest among those with CAD and DM.

Conclusion
NLR is an easily accessible and inexpensive inflammatory parameter. Appropriate cut-offs of NLR may be beneficial as screening tools for DM, CAD or both.