The Relationship between Neutrophil to Lymphocyte Ratio with Rehospitalisation and Mortality in Patients with Acute Coronary Syndrome

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Background: Cardiovascular disease is still the leading cause of death globally and is expected to continue to increase. In Indonesia, ischemic heart disease is the main cause of morbidity and mortality based on acute coronary syndrome (ACS) is a manifestation of coronary heart disease where there is decompensation of the heart due to narrowing or blockage of coronary arteries. Neutrophil to lymphocyte ratio (NLR) is a non-specific marker of inflammation which is simple, widespread, and affordable, and has predictive value, especially the incidence of ACS. NLR has the predictive value for the rehospitalisation after the ACS incident and the mortality rate in ACS patients.

Objective: This study aims to determine the relationship between NLR values with the incidence of rehospitalisation and death in ACS patients.

Method: This study is a single-centre observational analytical study conducted in a retrospective cohort. The number of ACS research subjects obtained from January to December 2021 are 102 patients who are included. NLR data taken at the time of hospital admission were divided into three groups; low (<3), moderate (3–5), and high (>5), data on the incidence of rehospitalisation who returned to treatment with reinfarction or ACS complications and mortality data during treatment were obtained through electronic medical records and then analysed using SPSS version 23.0 program.

Results: A total of 48 patients with ACS were found in the group with low NLR values (47%), 27 people with moderate NLR scores (26.5%), and 27 people with high NLR scores (26.5%). The highest number of deaths was found in the high NLR category and there was a strong relationship between NLR values and mortality in ACS patients with a statistically significant level of significance (p=0.038). The relationship between NLR and the incidence of rehospitalisation was found in three people (0.3%) who were found in the low and moderate NLR categories and there was no significant relationship (p=0.264).

Conclusion: The NLR value was associated with mortality during treatment, but was not associated with the incidence of rehospitalisation in ACS patients. NLR examination is a supporting examination with a wide range of access, affordable and useful in predicting the prognosis of ACS patients. ❏