Hanaa Mohammed

بسم اللّه الرحمن الرحيم

مركز الشبكات وتكنولوجيا المعلومات

قسم التوثيق الإلكتروني

Safaa Mahmoud

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

Role of neutrophil to lymphocyte ratio in risk stratifying patients with unstable angina and N-STEMI

Thesis

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By

Abeir Ramadan El Hinnawy
M.B.B.CH

Supervisors

Prof. Dr. Ali Ahmed El Abd
Professor of Cardiovascular Medicine
Faculty of Medicine - Ain shams University

Dr. Ehab Mohamed El Fekky
Lecturer of Cardiovascular Medicine
Faculty of Medicine - Ain shams University

Dr. Sameh Mosaad Abdul-Wahab
Lecturer of Cardiovascular Medicine
Faculty of Medicine - October 6 University

Faculty of Medicine
Ain shams University
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Abeir Ramadan El Hinnawy

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List of Abbreviations

Abb.	Full term
ACS	*Acute coronary syndrome*
AMI	*Acute myocardial infarction*
ANC	*Absolute neutrophil count*
BNP	*B-type) natriuretic peptide*
CAD	*Coronary artery disease*
CCL7	*Chemokine (C-C motif) ligand 7*
CK	*Creatine kinase*
CRP	*C-reactive protein*
cTnI	*Cardiac troponin I*
cTnT	*Cardiac troponin T*
CURE	*Clopidogrel in Unstable angina to prevent Recurrent Events*
ECG	*Electrocardiographic*
ECM	*Extracellular matrix*
FFR	*Fractional Flow Reserve*
ICAM-1	*Intercellular adhesion molecule-1*
IL-6	*Interleukin-6*
MACE	*Major adverse cardiovascular events*
MCP-1	*Monocyte chemoattractant protein-1*
MI	*Myocardial infarction*
NLR	*Neutrophil-to-lymphocyte ratio*
NSTEMI	*Non-ST-elevation myocardial infarction*
SAA	*Serum amyloid A*
SCD	*Sudden cardiac death*
SMCs	*Smooth muscle cells*
STEMI	*ST-elevation myocardial infarction*
TNF	*Tumor necrosis factor*
UA	*Unstable angina*
UAP	*Unstable angina pectoris*

List of Abbreviations (Cont...)

Abb.	Full term

VF ..... *Ventricular fibrillation*
WBC..... *White blood cell count*

ABSTRACT

Background; A well-known fact about acute myocardial infarction is its association with leukocytosis. The differential analysis of white blood cells gives additional benefit of assessing ACS severity by clinical outcomes. Obtaining peripheral leukocyte count is a cheap and widely available mode.

Aim and objectives: The aim of the study was to test the value of neutrophil to lymphocyte ratio in risk stratifying patients with acute coronary syndromes and its early outcomes.

Subjects and methods: The present study is a prospective observational study that included one hundred patients with acute coronary syndromes visited Ain shams University Hospital for six months (63% unstable angina and 37% NSTEMI.(

Result: There was highly statistically significant difference between risk groups as regard Neutrophil, Lymphocyte, PLTs, NLR, PLR and CK-MB. there was statistically significant difference between risk groups as regard WBCs.

Conclusion: Admission NLR is the strong and independent predictor of cardiovascular outcomes in patients with NSTEMI and UAP. Consequently, given the advantages of NLR, it may be the ideal marker for risk stratification in patients with NSTEMI and UAP. Despite the science of inflammatory biomarkers having been described decades ago, NLR appears to be enjoying a renaissance as a cost-effective biomarker with immediate clinical predictability and prognostication. The ease and rapidity of performing these tests make them an independent, simple, inexpensive and accurate early predictor of high-risk TIMI score patients in ACS.

Keywords: NLR ratio, non-ST elevation; myocardial infarction; unstable angina pectoris, cardiovascular mortality.

INTRODUCTION

The term acute coronary syndrome (ACS) is applied to patients in whom there is a suspicion or confirmation of acute myocardial ischemia or infarction. Non-ST-elevation myocardial infarction (NSTEMI), ST-elevation MI (STEMI), and unstable angina are the three traditional types of ACS. However, the widespread use of the high-sensitivity troponin test has changed the diagnosis of unstable angina to NSTEMI in almost all patients formerly diagnosed with unstable angina. This has occurred because those patients formerly called unstable angina actually have abnormally elevated high-sensitivity troponin values. Traditionally, unstable angina was defined as clinical and electrocardiographic (ECG) findings in the absence of an elevated biomarker level [(1)]

Myocardial infarction (MI) usually results from an imbalance in oxygen supply and demand, which is most often caused by plaque rupture with thrombus formation in an epicardial coronary artery, resulting in an acute reduction of blood supply to a portion of the myocardium, causing irreversible death (necrosis) of heart muscle secondary to prolonged lack of oxygen supply (ischemia) [(2)].

Complications of myocardial infarction include arrhythmic and mechanical complications.The most serious arrhythmia is ventricular fibrillation (VF). The three major mechanical complications of MI, each of which can cause

cardiogenic shock, are ventricular free wall rupture, ventricular septal defect and papillary muscle rupture with severe mitral regurgitation [3].

Inflammation plays a role in the pathogenesis of atherosclerotic lesions such as coronary artery disease [4]. During the atherogenesis process, a large number of inflammatory mediators are released, which can be an indicator of the burden of atherosclerosis [5; 6].

Neutrophils and lymphocytes are the first inflammation and regulatory markers, respectively, found in injured areas. They activate major cell types involved in acute and chronic inflammation. The neutrophil-to-lymphocyte ratio (NLR), calculated by dividing the neutrophil count by the lymphocyte count, is used to determine the prognosis of an inflammatory reaction and is a component of routine blood count analyses performed in the clinic. Use of NLR as an inflammatory marker has been previously reported [7 - 9].

Normal NLR values in an adult, non-geriatric, population in good health are between 0.78 and 3.53 [10].

Aim of the Work

To test the value of neutrophil to lymphocyte ratio in risk stratifying patients with acute coronary syndromes and its early outcomes