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BIOMARKERS OF THE INFLAMMATORY PROCESS IN PATIENTS WITH HEART FAILURE

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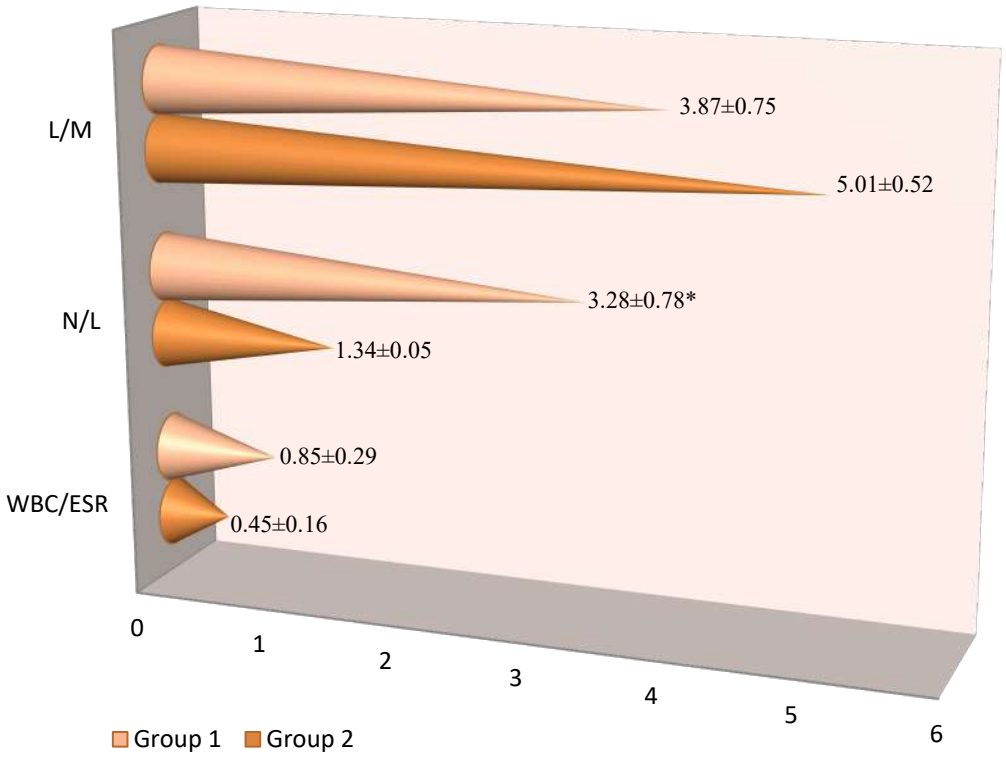
Heart failure (HF) is a clinical syndrome typically characterised by the appearance of symptoms such as dyspnoea, a worsening tolerance to exercise, which may be accompanied by abnormalities in a physical examination (e.g. features of pulmonary stasis, peripheral oedema). These result, in HF, from abnormalities in the structure and/or function of the heart, leading to insufficient blood supply to the tissue. [1]. Various stimuli, such as ischemia and neurohormonal activation contribute to an inflammatory response in HF patients [2]. A better understanding of the HF pathophysiology and the role of inflammatory biomarkers could improve the clinical management of HF patients and reduce the adverse clinical outcomes [3].

The purpose of the study. To investigate the distribution biomarkers of the inflammatory process among patients with syndromic manifestations of HF.

Materials and methods of research. To achieve this goal, the data of 26 case histories diagnosed with Coronary heart disease were analyzed with diagnosis Stable angina pectoris functional class (FC) II-III, Diffuse cardiosclerosis; in 17 patients complicated by syndromic manifestations of HF II-III FC according to the New York Heart Association (NYHA), which formed (group 1), and 9 patients without signs of HF – (group 2). Of the biomarkers inflammation used: the ratio of leukocytes (or white blood cells; WBC) to erythrocyte sedimentation rate (ESR): WBC / ESR = WBC × ESR / 100; the ratio of neutrophils and lymphocytes (N / L): N / L = N / L; the ratio of lymphocytes to monocytes (L / M): L / M = L / M.

Results and their discussion. To assess biomarkers of inflammation, a general clinical blood test at the time of admission to the hospital was examined.

Analysis of leukocyte indices showed that there was a statistically significant difference in determining the N / L ratio, which was increased in patients of group 1 (3.28±0.78) against group 2 **(**1.34±0.05**);** p <0.05 **(**Figure 1). N/L ratio provides information on two pathophysiologic pathways: neutrophils (linked to rapid immunologic response and increased levels of free radicals, responsible for tissue injury) and lymphocytes (linked to chronic adaptive immune response) [3]. Indicators of biomarkers of inflammation of the ratio WBC / ESR, L / M, were not statistically significant between groups, and therefore gender differences between the studied indicators were not detected (Figure 2).



Notes: the significance of the difference between the indicators: * $p<0.05$

Figure 1 - Indicators of biomarkers of inflammation in the studied patients.

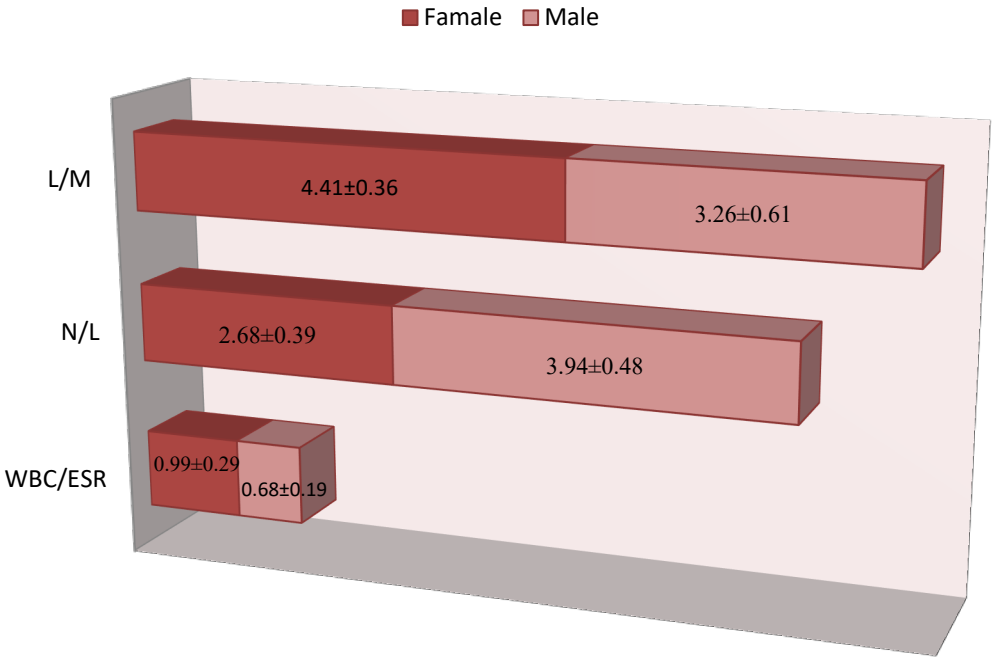


Figure 2 - Gender differences biomarkers of inflammation in patients with heart failure.

Thus, N/L ratio it is a fast, easy to evaluate and very basic laboratory test , is obtained by simply dividing the number of neutrophils by lymphocytes, so it can be calculated using a differential test for the number of leukocytes, which is regularly performed in most clinical settings.

Conclusions. An increase in the N / L ratio is a convenient marker of systemic inflammatory response in patients with syndromic manifestations of heart failure.

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