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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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FEATURES OF ANATOMICAL LESIONS OF CORONARY ARTERIES DEPENDING ON THE LEVELS OF ST2 AND TROPONIN I IN BLOOD PLASMA IN PATIENTS WITH NSTEMI

Valentyn I. Maslovskyi, Iryna A. Mezhiievska.

National Pirogov Memorial Medical University, Vinnytsya, Department of internal medicine, Vinnytsya, Ukraine.

Abstract.

Aim. The aim of the study is to evaluate the dependence of associations of ST2, and Troponin I level on the nature of the anatomical lesion of the coronary arteries.

Materials and methods. We examined 200 patients with NSTEMI aged 38 to 80 years, who were urgently hospitalized in the Vinnytsya Regional Clinical Center of Cardiovascular Pathology. All patients underwent laboratory testing of ST2, and Troponin I level in plasma by enzyme-linked immunosorbent assay on the first day of hospitalization before coronary angiography.

Results and discussion. In the association of relatively high levels of ST2 and relatively high levels of Troponin I, there is a positive correlation between the degree of coronary arteries damage, while in the association of relatively low levels of ST2 and Troponin I, severe stenotic coronary arteries lesions can be ruled out.

Conclusions. Determining the associations of ST2 and Troponin I before coronary angiography allows to predict the degree of stenotic lesions of the coronary arteries and to determine the expected intervention strategy in patients with NSTEMI.

Key words. NSTEMI, Troponin I, ST2, coronary arteries.

Introduction.

A large number of adverse events and endpoints in non-ST Segment Elevation Myocardial Infarction (NSTEMI) remain the focus of study due to the leading role of myocardial infarction (MI) among the causes of death [1]. In addition to the immediate consequences after undergoing MI, it is of great interest to study the long-term prognosis in this category of patients. Despite the achievements of modern science in treatment, the percentage of patients with an unfavorable prognosis remains quite high, which encourages further search for clinical and prognostic markers of destabilization of NSTEMI.

The already known markers of myocardial damage have recently received increasing attention to the growth stimulating factor expressed by gene 2 (ST2) [2]. ST2 plays a key role in regulating the myocardial response to biomechanical overload in cardiac fibroblasts and cardiomyocytes and is, in fact, a system that controls cardiomyocyte hypertrophy and cardiac fibrosis [3].

The aim. The aim of the study is to evaluate the dependence of associations of ST2, and Troponin I level on the nature of the anatomical lesion of the coronary arteries.

Materials and methods.

All studies conform to the principles of the Declaration of Helsinki of the World Medical Association. The study protocol, the form of informed consent of patients and other documents related to the study were approved at the meeting of the Academic Council of the National Pirogov Memorial Medical University, Vinnytsya (excerpt from the protocol No. 2 from 27.02.2020). Informed consent to participate in the study was discussed and signed by all study participants. We examined 200 patients with NSTEMI aged 38 to 80 (mean 62.0 ± 0.71, median – 62 and interquartile range – 55 and 70) years, who were urgently hospitalized in the Vinnytsya Regional Clinical Center of Cardiovascular Pathology. For all patients coronary ventriculography (CVG) was performed.

The main criteria for inclusion of patients in the study were: NSTEMI, which emerged for the first time; age of patients up to 80 years and the patient's informed consent to participate in the study. Patients older than 80 years were excluded from the study due to the excessive influence of comorbidities on the studied parameters. The diagnosis of NSTEMI was established according to the recommendations of ESC, 2020 [4]. The criteria for exclusion from the study were: 1) STEMI, transferred in the past and recurrent acute myocardial infarction; 2) age of patients 80 years and older; 3) the presence of sinoatrial or atrioventricular block II-III degree, implanted or the need for implantation of an artificial pacemaker; 4) chronic heart failure NYHA-III, IV before the incident of acute myocardial infarction; 5) diseases of the respiratory system, kidneys and liver, which were accompanied by signs of pulmonary, renal and hepatic failure; anemic conditions with a hemoglobin level below 110 g/L; 6) the presence of rheumatic and congenital heart defects, idiopathic and inflammatory myocardial lesions and 7) malignancies, severe neuropsychiatric disorders, alcohol abuse. Laboratory testing of ST2 and Troponin I (Tp I) levels in blood plasma was performed by quantitative enzyme-linked immunosorbent assay in all patients on the first day of hospitalization before CVG.

Statistical analysis of the research results was carried out using the methods of variational statistics using the STATISTICA 6.0 program. Comparison of relative values (%) was performed using the χ^2 test, quantitative values of independent samples – using the Mann-Whitney test and Kruskal-Wallis ANOVA test. Spearman's non-parametric correlation rank analysis was used to determine the relationship between individual parameters.

Results.

Using the variation statistics method, the ST2 level gradations group were selected. Thus, the relatively low (RL) corresponded to less than 25, and the relatively high (RH) level of ST2 to more than 75 persons in the group, respectively. For patients in the main group, these levels were <26 and> 56 ng / ml,

respectively. Instead, the relatively moderate (or intermediate) ST2 level (RM) for these patients was 26-56 ng/ml [5].

Also, using the variation statistics method the Tp I level gradations group were selected. Similar calculations made for the level of Tp I in plasma showed that the average level of the factor was 7.07 ng/ml at the minimum and maximum values of 0.31 and 18.41 ng/ml, respectively, and the standard deviation of the mean value (σ) – 4.84. The median was 5.96 and the interquartile range was 3.49 and 10.11 ng/ml, respectively. Therefore, the obtained data showed that in 75% of the examined NSTEMI patients the level of Tp I in plasma ranged from 3.49 to 10.11 ng/ml.

We calculated an indicator that characterized the severity of atherosclerotic stenosis of coronary arteries (CA) in points, where 0 points – the absence of atherosclerotic plaques in the CA, 1 – the presence of hemodynamically insignificant stenosis up to 50%, 2 – the presence of stenosis from 50% to 90% and 3 points – from 90% to complete occlusion. To assess the degree of CA damage, we used our own severity of atherosclerotic stenosis score in points [5].

The distribution of the value of the total score of the CA lesion at different associations of ST2 and Tp I levels in plasma (Figure 1) showed the following patterns. Thus, at different associations of ST2 and Tp I in plasma milder lesions of the CA (≤ 3 points) were registered from 65.8% to 40.5%, while more severe (> 3 points) – from 34.3 to 59 , 5% of cases. The largest number of cases with more severe and, accordingly, the smallest – with milder lesions of the CA, was observed in the association of RH ST2 / RH Tp I (59.5% vs. 34.2%, 35.0% and 24 , 4% and 40.5% against 65.8%, 65.0% and 75.6%, p according to the criterion $\chi 2$ was 0.03, 0.03 and 0.002, respectively).

It was observed that the largest number of different correlations with CVG indicators was determined for associations of ST2 and Tp I levels, which combined the same category of plasma factor level – RL ST2 / RL Tp I and RH ST2 / RH Tp I. A positive was determined correlation of RL ST2 / RL Tp I association with the absence of atherosclerotic plaques in the pool left anterior descending artery (LAD) (R = 0.15, p = 0.04), left circumflex artery (LCx) (R = 0.21, p = 0.003) and the absence of hemodynamically significant stenosis (HSS) CA (R = 0.19, p = 0.01). In addition, this association found a negative correlation with the presence of HSS LAD (R = -0.17, p = 0.02) and the presence of 2 vascular lesions CA (R = -0.18, p = 0.01), as well as the nature of the LCx lesion in points (R = -0.16, p = 0.01) and the total CA lesion score (R = -0.16, p = 0.02) (Table 1).

The highest correlations of the RL ST2 / RL Tp I association were registered with the absence of atherosclerotic plaques in LCx and the absence of HSS CA. Based on the data obtained, it should be assumed that the presence of RL ST2 / RL Tp I association in NSTEMI patients precludes severe CA lesions.

In turn, the presence of the association RH ST2 / RH Tp I revealed positive correlations with the presence of HSS right coronary artery (RCA) (R = 0.17, p = 0.01), LAD (R = 0.15, p = 0.03) and LCx (R = 0.21, p = 0.003) and the presence of 3 vascular lesions CA (R = 0.23, p = 0.001), as well as the nature of the lesion LCx in points (R = 0, 23, p = 0.0009) and the total CA score (R = 0.21, p = 0.004). In addition, a negative correlation was found between the RH ST2 / RH Tp I association and the absence of atherosclerotic plaques in the LCx (R = −0.27, p = 0.0001).

Thus, the results of the analysis showed that the biochemical association RH ST2 / RH Tp I identified in NSTEMI patients is accompanied by more severe CA lesions compared to other analyzed associations.

Discussion.

As a result of our study, we found a positive correlation between ST2, and Tp I levels and the degree of coronary artery

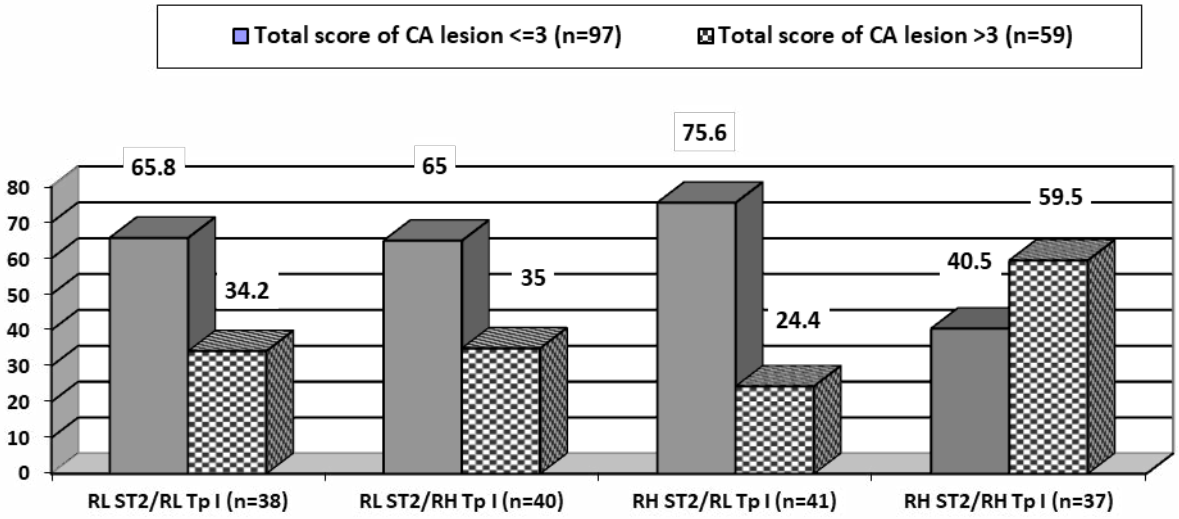

Figure.1. The total score of CA lesions depending on the association of ST2 and Tp I levels in plasma in patients with NSTEMI.

Notes:

- RL and RH – relatively low and relatively high levels in plasma, respectively,

- the age of patients is indicated on the vertical axis,

- the sensitivity of the analysis is 92%, the specificity is 97%.

Table 1. Spearman's rank correlation between associations of levels of ST2 and Tp I in plasma with CVG indicators in patients NSTEMI.

CVG indicators	Spearman R	P-value
RL ST2/RL Tp I in plasma (yes - 1, no - 0)		
Absence of plaques in LAD (yes - 1, no - 0)	0,15	0,04
Availability HSS in LAD (yes - 1, no - 0)	-0,17	0,02
Absence of plaques in LCx (yes - 1, no - 0)	0,21	0,003
The nature of the LCx lesion in points (0-3)	-0,16	0,01
The presence of 2-vascular lesions CA (yes - 1, no - 0)	-0,18	0,01
Absence HSS CA (yes - 1, no - 0)	0,19	0,01
Total CA score (0-9)	-0,16	0,02
RL ST2/RL Tp I in plasma (yes - 1, no - 0)		
No reliable relationships (p <0.05) were found		
RH ST2/RH Tp I in plasma (yes - 1, no - 0)		
The presence of 3-vascular lesions CA (yes - 1, no - 0)	-0,19	0,007
RH ST2/RH Tp I in plasma (yes - 1, no - 0)		
The presence HSS RCA (yes - 1, no - 0)	0,17	0,01
The presence HSS LAD (yes - 1, no - 0)	0,15	0,03
Absence of plaques in LCx (yes - 1, no - 0)	-0,27	0,0001
The presence of LCx (yes - 1, no - 0)	0,21	0,003
The nature of the lesion LCx (0-3)	0,23	0,0009
The presence of 3-vascular lesions CA (yes - 1, no - 0)	0,23	0,001
Total CA score (0-9)	0,21	0,004

Note: CA – coronary artery, HSS – hemodynamically significant stenosis, RCA – right coronary artery, LAD – left anterior descending artery, LCx – left circumflex artery.

disease. The results of such studies were based on determining the degree of damage to the coronary arteries on the Hensini score and assessing the risk of major adverse cardiac events (MACE) in this category of patients [6-9]. It was found that increasing levels of these biomarkers directly affect the increase in MACE and reduce the one-year survival of patients with myocardial infarction.

Previous studies have also shown that marked increases in Tp I in patients with NSTEMI have been associated with more severe clinical manifestations and culprit stenotic lesions with more complex morphological features on coronary angiography [10]. However, these studies did not assess ST2 levels and there are no data to predict the development of MACE. Instead, there is information that apelin-12 affects Tp I levels in the acute phase of MI, while in the non-acute phase low levels of apelin are associated with a high frequency of MACE [11].

Also, some studies have found a significant moderate positive correlation between high specific Tp I levels and the complexity of coronary artery lesion, as assessed by the SYNTAX score. However, a weak correlation was found between this biomarker and the clinical prognostic scores of TIMI and GRACE [12].

Thus, there is an indisputable positive correlation between the degree of CA damage and the increase in the levels of biomarkers that characterize myocardial damage. Determination of these biological markers will allow not only to predict the nature of CA lesions, but also to predict the likelihood of MACE in this category of patients.

In addition, we first analyzed the associative relationship of ST2 and Tp I levels, markers that reflect the processes of myocardial damage and fibrosis, with the degree of coronary arteries lesions. This analysis convincingly demonstrated not only the relationship between these parameters, but also the fact that the association of relatively elevated levels of ST2 and Tp I should expect more significant damage of the coronary arteries, which in turn is associated with an increased risk of adverse events.

Conclusions.

It is established that at association of relatively high level of ST2 and relatively high level of Tp I there is a positive correlation of degree of lesions of CA. No correlations have been established between relatively low ST2 and relatively high Tp I associations. Associations of relatively low levels of ST2 and Tp I exclude severe stenotic lesions of the CA.

Conflict of interest. There is no conflict of interest.

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