

Section 7. Medical science

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Clinical, functional and neurohormonal aspects to implement the concept to prevent subclinical atherosclerosis in a short-term and long-term prognosis

Abstract: In order to assess the prevention of subclinical atherosclerosis in a short-term (3 months) and long-term (1 year) prognosis according to functional and neurohormonal markers of atherogenesis 164 patients have been examined with clinical signs of subclinical atherosclerosis and atypical clinical.

Keywords: subclinical atherosclerosis associated with pregnancy plasma protein -A, C -reactive protein, atorvastatin, trimetazidine, Magne- B6.

Introduction.

The question to determine subclinical atherosclerosis in the XXI century is somewhat disputable because the term “atherosclerosis,” the authors say [1, 5] is misunderstandable including various variants of arteriosclerosis, each of them is not only characterized by structural features, but also specific causes and mechanisms of occurrence, and at a young age lipid-free intimal lesions of the arteries are formed with muscular-fibrous, fibrous hyalinized plaques, circular or focal muscle-elastic intimal hyperplasia — and therefore the question of screening and treatment of these patients is important. This definition makes it worthwhile to find modern transformation definitions of ischemic heart disease [2, 3], and therefore a comparison of clinical and pathophysiological paradigm of subclinical atherosclerosis concerning the effectiveness of treatment is important.

Objective.

To estimate prevention of subclinical atherosclerosis in a short-term (3 months) and long-term (1 year) prognosis by the functional and neurohormonal markers of atherogenesis.

Materials and methods.

The research is conducted on 164 patients who were admitted with bias diagnosis of cardialgia in the distribution of vegetative-vascular dystonia, coronary X syndrome, stable exertional angina pectoris of I–II functional classes using such paired diagnostic methods in a short-term (3 months) and long-term (1 year) periods as electrocardiography, echocardiography, extracranial

duplex ultrasound scanning of the common, external and internal carotid arteries, stress-tests (treadmill test), the methods to examine the blood indices including general blood count, biochemical test, blood lipid level of homeostasis, neuromessenger vasoactive indicators (Pregnancy-associated plasma protein-A (PAPP-A)) and C -reactive protein (CRP).

Statistical analysis of the results was carried out with assessment of average arithmetic values presenting the data in the form of $M \pm m$ and estimation of probabilities under normal distribution according to paired Student's test or paired nonparametric Wilkoxson's T-criterion, Spearman's rank correlation coefficient, Pearson's linear correlation coefficient, and odds ratio (OR).

Results and discussion.

The estimation of a total mediated index of intima-media complex (IMC) with extracranial duplex ultrasound scanning concerning the standard of 0.9 mm enabled to identify the signs of subclinical atherosclerosis and distribute patients into two groups — 84 patients with an increase in IMC and indicated statin therapy (atorvastatin, group 1) and the group of standard IMC (80 patients) with administration of a combined metabolic therapy (trimetazidine and magne -B6, group 2).

The task to evaluate the effectiveness of the treatment was the differentiation of the impact of the proposed treatment strategy depending on the manifestations of subclinical atherosclerosis in the distribution of the two groups of treatment parameters determin-

ing the dynamics neuromessenger indices investigated by its role in atherogenesis — Pregnancy-associated plasma protein- A (PAPP-A) and C -reactive protein (CRP).

No significant differences between the initial levels of PAPP-A (4,52 +0,08 and +0,05 4.42 mIU/L, $p > 0,2$) and CRP (16,78 +1,54 i 18,50 +2,72 mg/l, $p > 0,5$) in groups 1 and 2 were detected as shown in Figures 1 and 2.

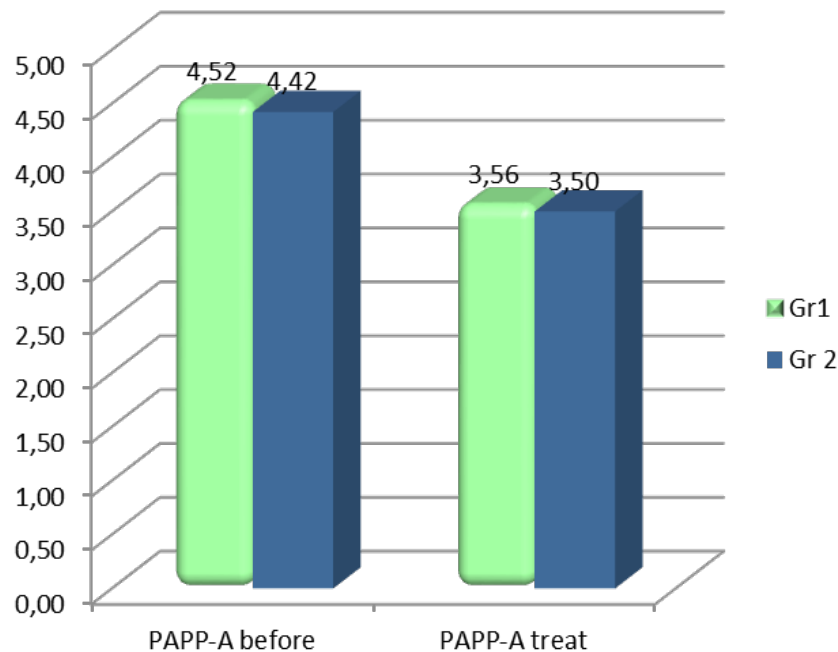


Fig. 1. The changes of pregnancy-associated plasma protein- A (PAPP-A) at the outcome and altitude of treatment.

Note. # — reliable changes in group 1 vs 1 and 2 vs 2 ($P < 0.05$) during the observation on admission, in 3 months and 1 year.

No reliable differences between groups 1 and 2 in the indices of PAPP-A (3,56 +0,05 3,50 and 0.09 mIU/L,

$p > 0,2$) and CRP (2.97 +0,78 i 3,44 +0,88 mg/l, $p > 0,5$) against the ground of treatment were found (Fig. 1 and 2).

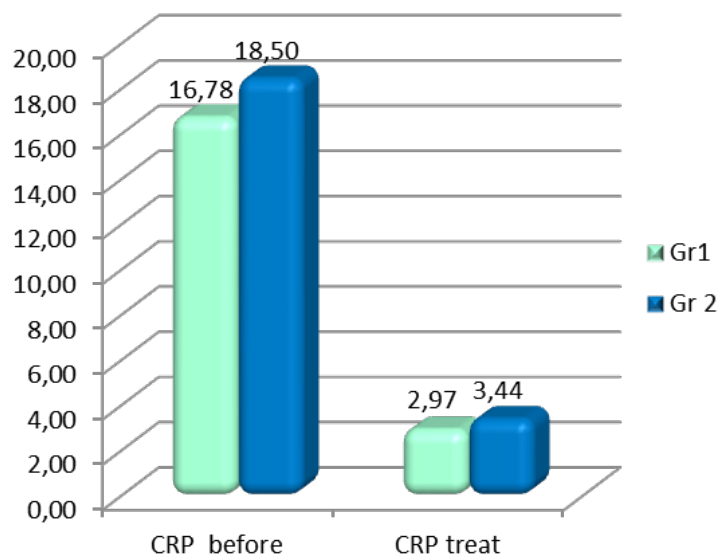


Fig.2. Changes in C-reactive protein (CRP) at the outcome and altitude of treatment.

Note. # — Significant changes in group 1 vs 1 and 2 vs 2 ($P < 0.05$) during the observation on admission, in 3 months and 1 year.

At the same time, there was a significant decrease in PAPP-A (4,52 +0,08 and +0,05 3,56 mIU/L, $p < 0,001$) in group 1 during treatment and group 2 (4,42 +0,05 and 3.50.0.09 mIU/L, $p < 0,001$), as it is illustrated in Figure 1.

A similar positive dynamics is registered during treatment by assessing CRP (16,78 +1,54 i 2,97 +0,78 mg/l, $p < 0,001$) in group 1 and group 2 (18,50 2,72 3,44 and 0,88 mg/L, $p < 0,001$), as it is illustrated in Figure 2.

Conducted statistical analysis of the odds ratio in the distribution of groups 1 and 2 according to the proposed treatment is indicative of the substantiation of the distribution of treatment depending on the definition of increasing and decreasing of IMC to index 0.9 mm at the beginning of testing with OR 4.15 (CI 1,73–9,96, $p=0,0014$). At the same time, the ratio of 10–20% decrease in growth rate of PAPP-A against the rate reduction of 20–30% is connected with the distribution of the treatment groups 1 and 2 with OR 0.56 (CI 0,09–3,52, $p=0,538$), and the distribution of CRP reduction rate was determined according to the treatment prescribed in groups 1 and 2 with OR 0.57 (CI 0,09–3,64, $p=0,554$).

Evaluation of linear Pearson's correlation coefficient is indicative of a weak relationship between initial level of PAPP-A and CRP before treatment ($r=0,30$, $p<0,05$), CRP before treatment ($r=0,29$, $p<0,05$) and CRP after treatment ($r=0,28$, $p<0,05$). In the group of a maximal decrease (–20–30%) of PAPP-A index during treatment a strong feedback (r -Spearman) is defined by IMC increase during treatment ($r=-0,80$, $p<0,05$) — similarly, in the group of a maximal decrease (–80–100%) CRP rate during treatment of secondary bond strength is recorded for IMC changes in treatment ($r=0,73$, $p<0,05$).

Thus, the study of contemporary biomarker of atherosclerosis PAPP-A is a sensitive, specific and independent risk factor for all causes of mortality or combined cardiovascular events and an early diagnostic indicator of acute coronary syndrome [7, 4] and a recognized discriminator between “ischemic and non-ischemic” patients with 90% sensitivity and 85% specificity ($p<0,0001$) [8, 32] and the index PAPP-A ≥ 4 mIU/L is mostly associated with the combined endpoint — myocardial infarction and death (Hazard Ratio/relative risk (HR (RR) 1.99, 95% CI 1,62–2,45, $p<0,0005$), mortality due to all causes (HR (RR) 2.42, 1,92–3,06, $p<0,0005$) and myocardial infarction (HR (RR) 1.40, 1,01–1,94, $p=0,046$). Once corrected for risk factors and treatment elevated PAPP-A remained

significantly associated with the combined endpoint (HR (RR) 1.51, 1,22–1,86, $p<0,0005$) and total mortality (HR (RR) 1.68, 1,32–2,13, $p<0,0005$) according to CLARICOR investigation [9, 3].

Comparison of the results of CLARICOR investigation in assessing subclinical atherosclerosis and relationships of CRP is used in the distribution of hs-CRP level (high-sensitivity-hs) $\geq 2,8$ mg/L [10,7], while EPIC-Norfolk prospective study indicates that circulating CRP levels are associated with increased risk of coronary heart disease, stroke and peripheral artery disease [5, 8] and they occur under conditions of pronounced atherosclerosis [6, 11].

Thus, in the absence of significant differences in PAPP-A and CRP in groups 1 and 2 at the beginning and during treatment, a significant decrease in PAPP-A in group 1 ($p<0,001$) and group 2 ($p<0,001$) is observed during treatment, and reduction in CRP in group 1 ($p<0,001$) and in group 2 ($p<0,001$), which in comparison with the data [4, 23] is indicative of the relationship of both biomarkers (PAPP-A and CRP) with unstable atherosclerotic plaque, and their decrease may indicate a stabilization of lipid plaques, as both indices are recognized as determinants of plaque instability.

Conclusion.

In the absence of reliable differences in PAPP-A and CRP in groups 1 and 2 at the beginning and during treatment there is a significant decrease in PAPP-A in group 1 ($p<0,001$) and group 2 ($p<0,001$) during treatment and PSA group 1 ($p<0,001$) and in group 2 ($p<0,001$), and increase and decrease of average IMC through 6 vessels to the value of 0.9 mm at the beginning of testing is characterized by the odds ratio (OR) 4.15, the decrease in growth rate PAPP-A 10–20% — OR 0,56, CRP in groups 1 and 2 — HS 0,57.

Prospects for future research are to continue elaboration of clinical-functional and pathogenetic components of subclinical atherosclerosis concerning the effectiveness of treatment.

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Eosinophilic esophagitis in structure of esophageal inflammatory diseases in schoolchildren

Abstract: Signs of pathological reflux are observed in 2/3 of children with chronic disorders of the upper gastrointestinal tract. The results of the daily pH-metry in children with chronic esophagitis does not always confirm the presence of gastroesophageal reflux and antisecretory therapy is not always effective in children with chronic esophagitis.

Keywords: schoolchildren, chronic esophagitis, eosinophilic esophagitis, gastroesophageal reflux

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Эозинофильный эзофагит в структуре воспалительных заболеваний пищевода у детей школьного возраста

Аннотация: Признаки патологических рефлюксов наблюдаются у 2/3 детей с хронической патологией верхних отделов ЖКТ. Результаты суточной рН-метрии у детей с хроническим эзофагитом не всегда подтверждают наличие гастроэзофагеального рефлюкса, а проведение антисекреторной терапии у детей с хроническим эзофагитом является не всегда эффективным.

Ключевые слова: школьники, хронический эзофагит, эозинофильный эзофагит, гастроэзофагеальный рефлюкс

Эзофагит — достаточно распространенная патология, которая может наблюдаться как отдельное заболевание, так и при заболеваниях внутренних органов и травмах пищевода [1, 4–5]. Однако этой про-