

## COMORBIDITY IN CORONARY HEART DISEASE AND WAYS TO OVERCOME IT

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### ABSTRACT:

Currently comorbidity or polymorbidity is relevant in the outcome of many diseases.[1] In particular, we are talking about IHD, unstable angina and anemia of varying severity. In 28 patients with coronary artery disease in combination with anemia, 3-valence iron was changed, the drug Sufer (Yuria-Pharm Ukraine) at a dose of 5.0 ml iv for 5 days against the background of standard therapy. In examined patients, that an increase in hemoglobin levels contributes to the normalization of the vibros fraction reduce or disappear angina attacks, increased exercise tolerance.[2,3]

**KEY WORDS:** coronary heart disease, iron-deficiency anemia, the drug 3x valence iron Sufer.

### INTRODUCTION:

In recent decades, coronary heart disease has been consistently ranked as one of the leading causes of cardiovascular disease morbidity and mortality. Coronary heart disease currently is and remains one of the main causes of cardiovascular mortality in the world.

Numerous works both in our country and abroad are devoted to the study of various pathophysiological aspects of its development. If the disease develops against somatically aggravated background, it causes additional difficulties both in diagnostics and in the tactics of managing this contingent of patients, regardless of age. The most urgent problem is comorbidity - an independent combination of different diseases in one patient, among which anemia occupies a significant place. The modern patient is characterized by a multiplicity of comorbidities, which may have mutual influence on the course and clinical manifestations of pathologies, in particular anemia of various etiologies. The increase in frequency of chronic diseases and their combinations with age causes difficulties in timely diagnostics and selection of adequate complex treatment of CHD. When examining patients with various forms of CHD, attention is usually paid to changes in biochemical blood parameters, functional state of coronary bed, pumping activity of the heart, daily ECG monitoring, underlying clinical manifestations of this pathology. Attention is also paid to the state of red blood parameters - hemoglobin, hematocrit, but often there is no correction of

these parameters, if the patient is anemic. Often the level of iron in the body is not determined, the decrease of which contributes to the aggravation of the quality of life and worsens the prognosis of coronary heart disease. All the above determines the relevance of the problem of combination of CHD and anemia of various etiologies, indicates the need to join anti-anemic therapy to study the pathophysiological mechanisms of joint development of pathologies, improvement of diagnostic and preventive measures.

### **PURPOSE:**

To determine the features of the course of unstable angina pectoris in patients with anemia of different degrees at the hospital stage against the background of standard therapy and application of the 3-valent iron preparation – Sufer.

### **MATERIALS AND METHODS:**

During the period from November 2017 to December 2018, we observed 28 patients with CHD - stable angina pectoris III-IVFC (Classification of the Canadian Society of Cardiology), complicated with iron deficiency anemia (based on serum iron level - less than 12 mmol/l). There were 11 women in the study group of CHD patients, mean age was  $56.1 \pm 5.1$  years, and 17 men, mean age was  $58.2 \pm 4.1$  years. Cancer patients and patients with chronic renal failure were excluded from the study. Functional class of angina pectoris was determined with the help of stress test - the number of meters walked for 6 min without "heart discomfort".

The criteria for anemia were decreased hemoglobin level ( $Hb < 120$  g/l) and the following laboratory blood tests: IDA - hypochromia (color index  $< 0.85$ ), microcytosis ( $MSV < 75$  mm), serum iron -  $< 12.0$  mmol/l, transferrin iron saturation -  $< 15\%$ . Mean pre-treatment blood Hb levels were  $91.4 \pm 3.7$  g/l

(the difference was statistically unreliable,  $p < 0.05$ ). Serum iron concentration before treatment averaged  $7.5 \pm 2.4$  mmol/L:  $5.9 \pm 1.1$  mmol/L in women and  $8.4 \pm 1.1$  mmol/L in men. Depending on severity of Hb decrease, we distinguish three severities of anemia: mild - 90-109 g/l (without hypochromia and microcytosis); moderate severity - 70-89 g/l (microcytosis, hypochromia); severe -  $< 70$  g/l (symptoms of tissue hypoxemia). In our study, 6 CHD patients with IDA had Hb levels below 70 g/l and an average of  $65.8 \pm 3.1$  g/l; anemia of medium severity was revealed in 9 patients with an average Hb level of  $86.1 \pm 2.2$  g/l; mild anemia occurred in 13 CHD patients with an average Hb level of  $104.6 \pm 3.1$  g/l. Treatment of the underlying disease - CHD was performed with antianginal drugs (prolonged nitrates, selective  $\beta$ -blockers, dihydropyridine calcium antagonists) with exclusion of aspirin and ACE, which, according to different authors, inhibit erythropoietin synthesis in kidneys and block its erythropoietic effect at bone marrow level. Treatment of IDA was performed with the 3-valent iron-containing drug Sufer in a dose of 5.0 v/v in the morning and evening for 5 days. In patients with severe IDA (6 patients) the initial treatment of IDA was started with intravenous administration of Sufer in the morning and evening with the addition to therapy of the oral iron-containing preparation Maltofer (Takeda Pharmaceuticals) at an average of 1375.1-14.3 mg, which corresponded to  $68.8 \pm 2.3$  mg  $Fe^{3+}$  per day. The remaining 22 patients received only Sufer in the hospital at a dose of 5.0 v/v twice daily for 5 days.

### **RESULT AND DISCUSSION:**

After the conducted treatment in patients with IDA we revealed 24,9% increase of Hb concentration (from  $91.4 \pm 3.7$  g/l to  $114.2 \pm 3.4$  g/l,  $p < 0.01$ ), which occurred due to increase of Fe -serum concentration by 53, 3% (after treatment) - from  $7.5 \pm 2.4$  mmol/l to

11,5±1,4 (p<0,001), that first of all contributed to the increase of transferrin iron saturation by 93% - almost twice (from 12,8±1,9% to 24,7±1,6%, p<0,001). Simultaneously with a 24.9% increase in hemoglobin levels, there was a corresponding 13.4% increase in Ht, indicating normalization of erythropoiesis as a result of improved transferrin function. Against the background of normalization of serum iron and hemoglobin levels, there was an improvement of cardiac pumping activity: documented by a 22.4% increase in EF: from 42.4±3.2% (before treatment) to 52.2±3.8% (by the end of treatment) (p<0.01), a 31.7% increase in exercise tolerance (from 287.2±26.5 m/6 min to 358.4±23.4 m/6 min, p<0.001). Such positive dynamics of exercise tolerance allowed to change the correlation of angina FC: before treatment III and IV FC were in 75,3% of observations (25 patients), after treatment - I FC - in 9 (32,1%), II FC - in 15 (53,6%,1%) and III FC - only in 4 (14,3%) patients. When evaluating clinical manifestations, in general, the number of angina attacks (heart pain) before treatment averaged 12 attacks per day, after treatment - 3 attacks per day, 6 patients completely refused to take nitroglycerin. Before treatment, the average total dose of B-adrenoblockers was 5.5±1.5 mg; after treatment, it was 3.25±1 mg.

## CONCLUSION:

Thus, the normalization of Hb level helps to improve Myocardial oxygen consumption and coronary blood flow, which provides the necessary energy balance for the effective operation of the heart as a pump - an increase in ejection fraction and exercise tolerance. Complex treatment of comorbidity, in this case unstable angina and anemia of varying severity, is relevant in the general problem of prevention, treatment and improvement of prognosis in CHD, and its correction is a very important addition to the complex standard therapy of cardiovascular disease, especially in our region.

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