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STATE OF PEROXIDATION PROCESSES IN PREGNANT WOMEN WITH VARICOSE DISEASE

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Chronic venous disease is defined as a set of diseases affecting the venous system, mainly manifested in the form of varicose veins [1]. The incidence of varicose disease (VD) of the lower extremities occupies one of the leading places in the structure of somatic diseases and is found in 60% of the female population in Ukraine [2]. The probability of developing varicose disease in women with a history of pregnancy exceeds 80% [3].

The pathogenesis of VD is a complex and multifactorial process [1, 4]. The venous system changes its function during pregnancy - changes are both functional and structural [5]. However, despite the availability of numerous studies on the causes of varicose disease of the venous wall, understanding the pathogenesis of this pathological condition still remains many questions [6]. Clinical progression of venous

insufficiency corresponds to varicose transformation of the vein wall and correlates with the progression of destructive pathohistological changes in the vein, which indicates its irreversible morphological changes [7]. The risk of developing varicose disease and other venous insufficiency is doubled in women who have been pregnant more than once [8]. In women with varicose disease the course of pregnancy and childbirth is characterized by a high frequency of obstetric and perinatal pathology, which requires improvement of the algorithm of diagnostic and treatment-and-prophylactic measures [9].

A violation of the lipid peroxidation system (LPO) is one of the factors of damaging the structural and functional properties of cell membranes which is manifested by antioxidant deficiency and excessive enhancement of LPO [10]. Despite the local nature of the clinical manifestations of VD it is accompanied by activation of essential antioxidant enzymes. This disease is systemic. Local accumulation of oxyradical venous vessels of the lower extremities can lead to elongation and further varicose deformation of superficial veins [6, 11, 12].

Purpose: to investigate the features of peroxidation processes in pregnant women with varicose veins.

Contingent of respondents and research methods

Assessment of biochemical parameters and their relationships was performed in 25 pregnant women with varicose veins – the main group. To determine the pathological process, its location and other features of VD the international classification CEAP (clinical-etiological-anatomical-pathophysiological classification), which is based on the analysis of objective clinical signs of chronic venous diseases with or without symptoms of CVI was used [13, 14, 15]. The severity of the disease was corresponded to clinical class C1-C3 according to the CEAP classification in all patients. Venous complications of VD were not observed. The comparison group consisted of 32 pregnant women without somatic pathology.

The average age in women with VD was 30.3 ± 1.9 years, and in the group of pregnant women without somatic pathology – 27.5 ± 1.4 years ($p < 0.05$), and the examination period - 26.7 ± 1.9 weeks and 28.2 ± 1.2 weeks ($p > 0.05$), respectively.

Lipid peroxidation processes were evaluated for the content of diene conjugates and malonic dialdehyde. Indicators of thiol-disulfide system were evaluated by the level of reduced glutathione and the total content of thiol compounds [16, 17].

The results of the study were processed using the statistical package of the licensing program «STATISTICA 13».

Research results and their discussion

Evaluation of lipoperoxidation markers, namely: levels of diene conjugates and malonic dialdehyde in pregnant women with VD indicates their statistically significant ($p <0.05$) predominance compared with the corresponding rate in pregnant women without somatic pathology (Table 1).

Table 1

The level of markers of lipoperoxidation in pregnant women in study groups Me (Q25; Q75)

Indicators	Main group (n = 25)	Comparison group (n = 32)	P
Diene Conjugates, o.u.d / l	1,3 (1,04; 1,4)	1,0 (0,9; 1,1)	p < 0.05
Malone Dialdehyde, nmol / l	4,3 (4,3; 4,8)	3,5 (2,8; 3,9)	p < 0.05

Such results can be caused both by increase in intensity of formation of oxygen radicals and decrease in activity of antioxidant protection, or a combination of the above-stated factors. The reduction of antioxidant properties of blood plasma in pregnant women with VD is evidenced by a significant reduction in the reserves of reduced glutathione and free thiol compounds (Table 2). Thus, in the group of pregnant women with VD compared to somatically healthy pregnant women, the indicators were statistically significantly ($p < 0.05$) lower, namely 2 and 1.7 times, respectively.

Table 2

The level of markers of lipoperoxidation of reduced glutathione in pregnant women with VD and without somatic pathology, Me (Q25; Q75)

Indicators	Main group (n = 25)	Comparison group (n = 32)	P
Reduced Glutathione, mkg/ml	9,1 (6,9; 12,2)	18,7 (16,1; 21,2)	p < 0.05
Total Content of Thiol Compounds, μmol / g protein	10,9 (5,9; 14,5)	18,8 (14,9; 24,3)	p < 0.05

Conclusions

Thus, the analysis of biochemical studies showed that the course of pregnancy in women with varicose disease is accompanied by a decrease in the content of reduced glutathione in the blood. Such shifts in antioxidant protection were accompanied by the most pronounced increase in the process of lipid peroxidation.

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