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OXIDATIVE STRESS MARKERS IN WOMEN WITH PREGNANCY COURSE COMPLICATED BY MISCARRIAGE

Siusiuka V.G. Doctor of sciences, Associate Professor
Zaporizhzhia State Medical University, Ukraine

Serhieieva L.N. Doctor of sciences, Professor
Zaporizhzhia State Medical University, Ukraine
of Ministry of Health of Ukraine»

Soloviova N.M., Doctor
Maternity hospital No. 9, Zaporozhye

Long activation of free-radical oxidation processes is the base of pathogenesis of different pathological conditions. Besides the connection between nature of pathological process and changes of markers of organism protective antioxidant system is found [1]. Oxidative stress can have destructive influence on cellular structures of placenta. During investigation of placenta tissues it was found that in case of complicated pregnancy course (threatening miscarriage, gestosis, urogenital infection) the morphological changes, which consist of damage of biomembranes and change of immune homeostasis, are obvious in placenta tissues [2]. Lack of antioxidants for support of homeostasis in women with miscarriage leads to exhaustion of blood antioxidant protective system that, in its turn, causes significant increase of radical formation processes [4].

Object of the work – estimate the oxidative stress markers in women with pregnancy course complicated by miscarriage.

Examined group and research methods

90 women in II and at the beginning of III trimesters of pregnancy were examined. In order to estimate peculiarities of biochemical homeostasis in women with pregnancy course complicated by miscarriage there were studied 44 women with pregnancy course complicated by miscarriage (the main group) and 46 women without clinical manifestations of miscarriage during pregnancy (Control group). Withdrawal criteria were diseases of cardiovascular, urinary systems and endocrine pathology. Average age of pregnant women in the main group was 27.3 ± 1.5 years and 27.4 ± 1.1 years – in comparison group ($p > 0.05$). Significant differences according to social and professional structure were not revealed.

Markers of oxidative modification of proteins in blood serum were analyzed by spectrophotometric method with wave length of 270 nm (aliphatic aldehydedinitrophenylhydrazones of the main aminoacid residues – APH) and 363 nm (carbonyl dinitrophenylhydrazones of the main aminoacid residues – CPH). Analysis of oxidative modification of proteins was made according to the method of B. Halliwell and its level was expressed in standard units per 1 gram of protein (s.u./g protein) [3].

Variational and statistical processing of results was made using STATISTICA 13 – license standard application program packages for multidimensional statistical analysis.

Research results and their discussion During study of oxidation-reduction processes in pregnant women who had pregnancy complicated by miscarriage there was revealed that level of APH and CPH during spontaneous course of oxidation process exceeded the similar indicators among women without clinical manifestations of miscarriage during current pregnancy (Fig. 1 and 2).

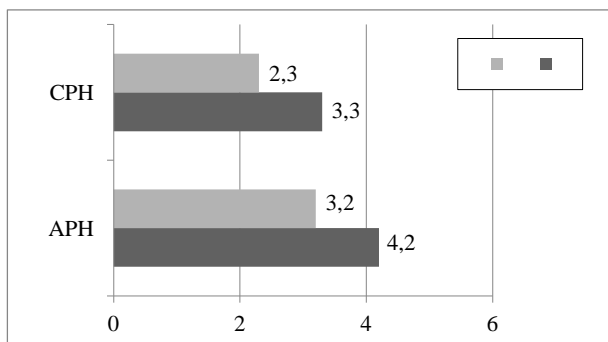


Fig. 1. Characterization of spontaneous oxidation of proteins in the study group.

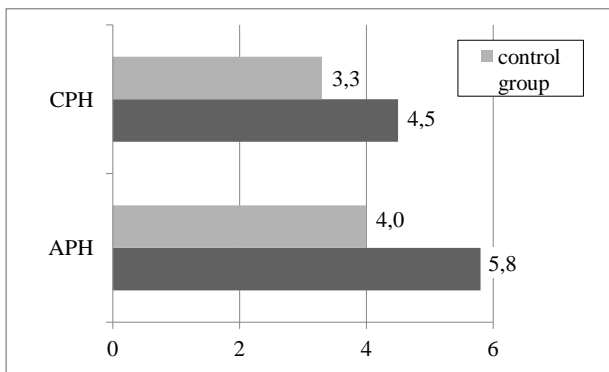


Fig. 2. Characteristics metal-catalyzed oxidation of proteins in the study group.

Stimulation of oxidation process with Fenton medium showed that adaptative antioxidant reserves of blood serum are stipulated by functioning of antioxidant protective system. Research results of metal-catalyzed oxidative modification of proteins of serum indicate the rise of content of markers of blood protein (APH and CPH) oxidative damage in pregnant women of both groups. However increase of APH and CPH content in pregnant women without clinical manifestations of miscarriage was less significant and indicators were statistically and significantly ($p < 0.05$) lower compared

to group of group of pregnant women with pregnancy course complicated by miscarriage.

Conclusion

Pregnancy course complicated by miscarriage is characterized by intensification of oxidative modification of proteins. These results indicate occurrence of oxidative stress in this group of women.

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