FORECASTING HEMODYNAMIC DYSFUNCTION OF UTERO-PLACENTAL COMPLEX IN EARLY PREGNANCY

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Placental insufficiency (PI) is a clinical syndrome manifesting hypoxia of fetus and delay its intrauterine development.

In the development of PI main, and often the first are hemodynamic microcirculatory disturbances. This leads to a decrease in the volume of inflowing maternal blood to the placenta against a background of the insufficient invasion of cytotrophoblast from early terms of pregnancy (Radzinsky V.E. et al., 2002). The pathology of the utero-placental blood flow should be considered as one of the regional manifestations of adjustment disorder parent organism and regulatory mechanisms of cardiovascular system (Peshev L.P., 1998; Savelyeva G.M., 2003; Kulakov V.I. et al., 2004).

Analysis of the literature shows that most of placental insufficient accuracy is considered separately from the causal factor which it is causing development of this pathology. Therefore, the aim of our study was to examine the influence of hemodynamic disturbances in the early stages of gestation on formation dysfunction placenta at abortion, hypertension, arterial hypotension, and chronic pyelonephritis of pregnant.

Material and methods. In periods of 6 - 15 weeks were examined 165 pregnant with threatening abortion (TA), 141 pregnant with arterial hypertension (AH), 140 - with arterial hypotension, and the 115 - chronic pyelonephritis (CP). The control group consisted of 40 healthy pregnant by age and terms of pregnancy comparable with the main group.

Identification of the early markers of hemodynamic dysfunction in utero-placental system carried out by the vaginal bipolar rheohysterography method by L.P. Peshev (1998), allowing to register synchronously hemodynamic changes in the vascular pool of utero-placental system and on the side intact uterus from the moment of implantation of the ovum. Registration rheogram of uterine arteries was performed on the device «RG 4 - 01» using bipolar electrode own design.

The results of the study. It is established that in the first trimester in healthy pregnant occurred intensification of blood flow on the side of implantation (SI) of the ovum with the increase of the speed of the blood supply to large vessels Vmax 2.2 times (1,301±0,045 Om/s) compared to the intact party (IP) - 0,585±0,012 Om/s. Also in SI 1.5 times ($P<0.05$) increased speed bloodfilling of the vessels of small and medium caliber Vmid (0,180±0.026 and 0,124±0,006 Om/s, respectively). The venous outflow from both sides remained the same within β 0,479±0,017 with the SI and 0,496±0,003 with the IP.

In pregnant with TA and developing total index Vmax was 3.7 times higher ($P<0.001$) compared with blood flow in normal developing pregnancy. The

intensity of blood flow to the SI was less than 1.9 times than IP ($P<0.01$). Even more, 4.5 times ($P<0.001$), increased total Vmid with a reduction in intensification of blood flow in SI compared with IP 2.2 times ($P<0.001$). However, the intensity of venous outflow was at benchmark. Increase in blood supply to the uterus in TA can be seen as a compensatory-adaptive response aimed at ensuring the growing needs of the fetus in the conditions of the raised hypertonus of myometrium, and anomalous lateralization blood circulation is a manifestation of adjustment disorder.

Disorganization of the adaptation processes at the PI pregnant women with hypertension manifested as a lack of bilateral differences Vmax and Vmid in terms of up to 16 weeks while reducing total Vmax 2.9 times, and the Vmid in 1.3 times in comparison with the control ($P<0.05$). Deterioration of venous outflow manifested by elk rise time of descending wave β by studed pathology in 1,4 times ($P<0.05$), more pronounced on the SI.

In pregnant women with hypotension Vmax has been reduced by 1.2 times ($P<0.05$), and the Vmid in hypotension did not differ from the normal. Unlike women with normal gestation, they lacked bilateral difference indicators. Obstruction of the outflow of 14.2 % ($P<0.05$) created a plethora villi, which resulted in a significant increase in the area of exchange between the three blood river - beds, maternal, placental, fruit (Pavlova T.V., Selivanov A.V., 2008).

In pregnant women with CP Vmax and Vmid authentically did not differ from the normal values. Moreover, Vmax SI was higher by 1.2 times ($P<0.05$), and there was no bilateral difference Vmid on the background of normal flora of venous outflow, that, apparently due to the start of the process of adjustment disorder in conditions of infection and early formation of secondary PI, when the vascular component is the consequence and not the cause of pathological process.

Studies have shown that bipolar vaginal rheohysterography is an objective method of forecasting PI in the early stages of pregnancy.