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A Blood Stream is in the Middle Cerebral Artery of Fruit, at Differential Diagnostics of Truly Postmature and Prolonged Pregnancy

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Abstract

Postmature pregnancy is the thorny problem of modern obstetrics. Actuality of her is conditioned by high perinatal morbidity and death rate, and also by the large number of complications in luing-ins and birthright operations. Frequency of postmature pregnancy in a population makes from 8 to 10% and does not have a tendency to the decline neonatal morbidity at postmature pregnancy arrives at 29%, and mortinatality - 19%, that higher, than at the worn pregnancy [1,2]. It is related to subzero stability of fruit to the hypoxia because of greater maturity of cerebrum and reduction of receipt to him oxygen from morphological changes in a placenta. Prolonged pregnancy lasts more than 287 days, is not accompanied by fetal suffering and ends with the birth of a healthy child without signs of over maturity [3,4].

Keywords: *Blood Stream; Middle Cerebral Artery; Fruit; Pregnancy*

One of the adaptive mechanisms during pregnancy prolongation is the low ability of cerebral vessels to spasm with an increase in the level of catecholamines and other pressor mediators, which is associated with a decrease in the number of α-adrenergic receptors and receptors for other vasoconstrictors in their vascular wall; the formation by the end of pregnancy of the mechanism of autoregulation of cerebral circulation, designed to provide circulatory-metabolic homeostasis of the brain. At the same time, a universal mechanism of protection of the fetal brain "brain-sparring phenomenon" is formed - the brain protection syndrome. It consists in enhancing blood supply and maintaining the required level of oxygenation of the brain. This mechanism is based on a decrease in the sympathetic innervation of the vascular wall, which leads to an expansion of the lumen of cerebral vessels [3].

Since hemodynamic disturbances are leading in the pathogenesis of fetal deterioration in post-term pregnancy, Doppler study of blood flow is of great practical importance.

According to N. Strizhakov (2009), true prolongation of pregnancy is accompanied by a decrease in resistance in the middle cerebral artery of the MCA (no more than 50%).

Thus, all pregnant women with a gestational age of more than 42 weeks need to carry out a Doppler study of fetal blood flow to accurately assess the condition of the fetus, its compensatory capabilities and the choice of rational obstetric tactics aimed at improving perinatal outcomes.

Purpose of the Study

To determine the characteristics of blood flow parameters in the middle cerebral artery (MCA) in prolonged and truly post-term pregnancy.

Material and Methods

A retrospective study of 98 birth histories with a pregnancy duration of more than 42 weeks was carried out, of which 46 were with truly post-term pregnancies and 52 with prolonged pregnancies. The control group consisted of 36 pregnant women who were delivered at full-term pregnancy. The age of pregnant women in the study groups did not differ significantly ($P \geq 0.01$), being 28.5 ± 1.3 and 27.6 ± 0.92 years, respectively, and in the control group 26,9 ± 1.6 years. Cases of post-term or prolonged pregnancy with preeclampsia, hypertension of pregnant women, endocrine pathology, signs of fetal growth retardation and placental insufficiency, as well as severe anemia were excluded from the study. For the statistical analysis of the results obtained, the statistical packages Statistica 12, Microsoft Excel 2007 were used.

Clinical manifestations of true over maturity include oligohydramnios, yellow or green amniotic fluid, lack of cheese-like lubrication, "bath" feet and palmar surface of the hands, dry skin, dense bones of the skull, narrow sutures and fontanelles, staining of the membranes and umbilical cord, and specific morphological signs histological examination. Before delivery, all pregnant women underwent USS of the fetoplacental complex with an assessment of blood flow in the uterine, umbilical and middle cerebral arteries (MCA) according to the pulsation index (PI), as an assessment criterion for adaptive centralization of blood circulation.

Results

Surgical delivery for complex indications in the first group was performed in 13 (25%) women and in 24 (52.2%) women with post-term pregnancy due to fetal distress, impaired uterine contractility and clinically narrow pelvis. The average Apgar score in the group of women with prolonged pregnancy was 8.1 ± 0.2 points, and with true prolonged pregnancy it was 7.2 ± 0.3 points and significantly differed ($P \leq 0.005$). The average weight of newborns in the study groups did not differ significantly ($P \geq 0.01$) and was equal to 3768 ± 385 and 3854 ± 476 grams, respectively. The truthfulness of prolongation was established by the clinical manifestations of the fetoplacental complex after the birth of the child.

Among women with prolonged pregnancy, PI in SMA ranged from 0.9 to 1.0, averaging 0.95 ± 0.04. At the same time, in the control group, this indicator did not significantly differ from that in prolonged pregnancy ($P \geq 0.01$), ranging from 0.96 to 1.1), averaging 0.96 ± 0.06. With a truly post-term pregnancy, this indicator ranged from 0.76 to 1.0, averaging 0.83 ± 0.03 significantly different ($P \leq 0.005$) from the same indicator among pregnant women with prolonged pregnancy.

Conclusion

Thus, the PI SMA indicator must be taken into account when deciding the issue of true prolongation of pregnancy. At the same time, PI less than 0.9 can be considered an additional evaluative criterion for true prolongation of pregnancy. Confirmation of the true prolongation of pregnancy will allow you to choose the most optimal tactics for managing labor and delivery.

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