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COMPARISON OF GESTATION AND LABOUR IN WOMEN WITH MULTIPLE PREGNANCY AND MONOCYESIS

Abstract. *Analysis of the development of gestation demonstrated that contrary to monocyesis multiple pregnancy in women provokes exacerbation of chronic extragenital diseases due to increased load on all the organs and systems, especially on the cardio-vascular one. Multiple pregnancy is a risk factor causing anemia, miscarriage, placental dysfunction, pre-eclampsy, intrauterine infection, developmental retardation and fetal distress. Patients with multiple pregnancy reliably more often develop complications in labour ($p < 0,05$). The frequency of perinatal loss in case of multiple pregnancy is 2,5 times higher than that of monocyesis. Analysis of complication rate from the side of mother and fetus in case of surgical delivery is indicative of the fact that cesarean section is not a selective method of delivery in case of multiple pregnancy.*

Key words: *multiple pregnancy, miscarriage, placental dysfunction.*

Introduction. In recent years increased number of delivery with more than fetus has been recorded. Scientists from different countries of the world do not keep to one opinion concerning etiological factors promoting multiple pregnancy [2, 4, 7, 8]. This issue is constantly discussed and supplied with new scientific data. In 50% of cases multiple pregnancy is caused by heredity. Recently occurrence of multiple pregnancy has been associated with application of modern reproductive technologies: stimulation of ovulation and in vitro fertilization (IVF). Multiple pregnancy is also considered to occur due to fertilization of the ovum in which ovulation has already occurred against the ground of already existing ovum. A part of women have unknown causes of multiple pregnancy [3, 5, 6].

Development of two or more fetuses increases burden on the female organism, which adaptation possibilities not always are able to ensure normal development of pregnancy. According to the data suggested by different authors maternal sickness rate with pregnancy and labour in case of twin pregnancy becomes 3-7 times higher. Perinatal and neonatal mortality rate increases considerably [1, 2, 4, 6]. Therefore, investigation of different aspects of multiple pregnancy with the purpose to elaborate appropriate preventive measures concerning decrease of various complications has become more topical.

Objective: to study peculiarities of the

development of gestation and labour in case of multiple pregnancy in comparison with monocyesis.

Materials and methods. Individual medical cards of pregnancy and delivery case histories of 60 women with multiple pregnancy (I group) were analyzed. 20 women with monocyesis constituted II group. The data of general, obstetric-gynecological, somatic, family anamnesis, clinical signs of pregnancy and labour, condition of newborns were examined. All the women with multiple pregnancy were diagnosed to have twins. Condition of the fetus was assessed according to the findings of cardiotocography, ultrasound diagnostics, biophysical profile of the fetus and Doppler results.

To determine statistical reliability of difference between the group mean the parametric statistical method Student t-criterion was applied.

Results and discussion. The examined women were similar by age (from 20 to 38 years). According to family anamnesis genetic susceptibility to multiple pregnancy was found in 15% of cases. Analysis of obstetric-gynecological anamnesis determined the following: I group contained more primiparas (70%) than II group (45%). Previous pregnancies were more often interrupted in II group (10% in I group and 15% - in II one).

Gynecological sickness rate was practically similar in both groups: cervical erosion was found

in 3 women of I group (5%) and in 1 woman (5%) from II group. Infertility in anamnesis was found in 12 women (20%) from I group and 2 women (10%) – from II group. Menstrual cycle disorders were detected in 9 women (15%) from I group and 1 woman (5%) – from II group. It should be noted that a share of inflammatory diseases of the female reproductive organs was rather high: 18 women from I group (30%) and 2 patients (10%) – from II one.

Examination of a share of extragenital pathology showed that women with multiple pregnancy were more often diagnosed to suffer from cardio-vascular diseases than those with one fetus in pregnancy. Thus, vegetative-vascular dystonia was found in 45 examined women (75%) from I group and 3 women (15%) – from II group; essential hypertension – in 15 (25%) patients from I group and 1 (5%) – from II group; mitral valve prolapse – in 12 (20%) women from I group and 1 (5%) – from II group; varicose veins of different severity – in 33 (55%) examined women from I group and 2 (10%) – from II group. These data correspond to the results of studies conducted by other scientists [1, 2, 4, 5] and are explained by increased burden on the cardio-vascular system of women with multiple pregnancy.

Gastro-intestinal pathology was detected in 18 (30%) women from I group and 4 (20%) – from II group; diseases of the thyroid gland – in 27 (45%) patients of I group and 6 (30%) – from II group. Urinary pathology was found in 18 (30%) women from I group and 3 (15%) – from II group. It should be noted that during pregnancy women with multiple pregnancy often develop exacerbation of chronic extragenital diseases at the expense of increased burden on all the organs and systems [1, 6, 7].

Analysis of the development of pregnancy resulted in obtained data indicative of increased number of complications in patients with multiple pregnancy. Anemia should be mentioned here as that of having high frequency in case of multiple pregnancy (75% against 30% in the second group), (Table 1). It is explained by the fact that during pregnancy with twins intravascular volume increases, iron deposits become exhausted, resulting in reduced hemoglobin level, especially during III trimester, and thus it determines reasonability to indicate iron-containing

preparations at the very early terms of pregnancy [2, 5, 8]. Threat to interrupt pregnancy occupies the second position among complications. Thus, 42 (70%) women with twins were under the threat of miscarriage in different terms, and in II group there were 2 such women (10%), ($p < 0,01$). Higher risk of late miscarriage in women with multiple pregnancy than those with monocyesis should be noted ($p < 0,05$). At the early terms of pregnancy the frequency of miscarriage threat was similar in both groups ($p > 0,05$). Placental dysfunction (PD) was on the third position. It was diagnosed in 39 (65%) women of I group and 3 cases (15%) in II group. These findings correspond to the results of other investigations, and multiple pregnancy is considered as PD pattern. According to the number of complications for mother, fetus and newborn it belongs to high risk pregnancy [2, 3, 5, 6]. Early and late toxicosis in case of multiple pregnancy was found twice as often than in case of monocyesis. Perinatal mortality rate in I group was 2,5 times higher than that in II group.

In case of multiple pregnancy special attention was paid to the assessment of the development and condition of the fetuses. Gravidogram and assessment of the expected fetal weight according to Blichstein scale was conducted continuously. Every 3-4 weeks transvaginal cervicometry was carried out.

USD monitoring of the development of pregnancy diagnosed retardation of the intrauterine development of one or both fetuses in 21 women (35%) with multiple pregnancy and in 1 woman (5%) with monocyesis ($p < 0,01$). Reliably higher frequency of retardation of the intrauterine development in case of multiple pregnancy can be caused by exhaustion of adaptation mechanisms of the uterine-placental circulation. Moreover, anemia can be considered as one of the causative factors of retardation of the intrauterine development as well.

It should be noted that 30% of pregnancies with twins were achieved by means of auxiliary reproductive technologies, which to certain extent explains a high percentage of intrauterine infection of the fetus. Women with multiple pregnancy are likely to have considerably lower immunity than in those with monocyesis. One of the signs to decrease protective mechanisms of the body and intrauterine infection available in

case of multiple pregnancy is rather frequent pathology of the amnion (in I group – 15%, in II – 5%). Substantial increase of the frequency of intrauterine infection of fetuses in case of multiple pregnancy as compared to monocyesis requires deeper investigation. Moreover, infection of the amniotic membranes is known to promote their preterm rupture and preterm delivery [2, 3].

The complications of pregnancy mentioned above can lead to the development of twin-to-twin transfusion syndrome. Intrauterine death of one of the fetuses can cause cerebral ischemia of a live twin and following neurological disorders [2, 3, 6]. Therefore, the issues of management of multiple pregnancy are in the focus of special attention.

Assessment of biophysical profile (BPP) of fetuses from I group at 36-37 weeks of gestation (30 women) found out 9-9 score in 2 fetuses (3,34%), 8-9 score – in 6 (20%), 8-8 score – in 12 (40%), 7-8 score – in 6 (20%), 7-7 score – in 5 (16,67%), 6-7 score – in 2 (3,33%), 3-5 score – in 1 (1,66%). In II group there were the following results detected: in 16 women (80%) condition of fetuses was assessed as being 9-10 score, in 3 (15%) – in 8-9 score, in 1 (5%) – in 7-8 score.

Doppler circulation test in the umbilical vessels in women from I group was found to be normal in 80% of cases, slow circulation – in 16,67%, zero circulation – in 1 (3,33%). In II group only one case (5%) was characterized by slow circulation.

Development of delivery in the examined groups differed considerably as well. Thus, abnormal uterine contractions were detected

twice as much in case of multiple pregnancy, obstetrical bleeding 4 times as much, fetal distress – 6 times as much, intrauterine fetal infection – 12 times as much as compared to the delivery with one fetus (Table).

Preterm delivery occurred in 33 (55%) women from I group, in II group - in 1 (5%) case. Analysis of the term of childbirth in case of multiple pregnancy demonstrated that preterm delivery at 22-27 weeks of gestation occurred in 3 (5%) patients, at 28-33 weeks – in 9 (15%), at 34-36 weeks – in 15 (25%), at 35-36 weeks – in 3 (5%), at 36-37 weeks – in 3 (5%), at 38-39 weeks – at 27 (45%). Therefore, in case of multiple pregnancy preterm delivery occurred more often at the term of gestation 28-33 weeks and 34-36 weeks.

The issues of surgical delivery in case of multiple pregnancy are of special attention. Cesarean section was performed in 30 (50%) women out of 60 ones with twin pregnancy, including 24 (40%) planned surgeries due to the following indications: pregnancy after auxiliary reproductive technologies (ART) – 12 cases (20%); lack of effect after treatment of severe pre-eclampsy – 3 cases (5%); irregular position or breech presentation of the first fetus – 6 cases (10%); according to the combined indications – 3 cases (5%).

6 (10%) women were operated on by means of cesarean section in urgent case due to: premature abruption of the normal placenta – 3 cases (5%); fetal distress – 3 cases (5%). In II group cesarean section was oerformed only in one case (5%) due to premature abruption of the normal placenta.

Table

Frequency of complications of pregnancy and labour

№	Gestation complications	Clinical groups			
		I, n = 60		II, n = 20	
		n	%	n	%
1.	Anemia	45	75	6	30
2.	Threat of miscarriage	42	70	2	10
3.	Placental dysfunction	39	65	3	15
4.	Early toxicosis	18	30	3	15
5.	Pre-eclampsy	18	30	3	15
6.	Amnion pathology	9	15	1	5
7.	Intrauterine fetus infection	12	20	-	-
8.	Fetus distress	6	10	-	-
9.	Developmental retardation of fetus	21	35	1	5
10.	Preterm delivery	33	55	1	5
11.	Obstetrical bleeding	12	20	1	5

It should be noted that frequency of birth of babies with the body weight over 2500 g in case of monochorionic pregnancy was 85%. In case of multiple pregnancy it was 55% ($p < 0,01$). In I group as compared to II group babies with the body weight of 1000-1500 g were born reliably more often, as well as over 1500 g, but less than 2500 g ($p < 0,01$ and $p < 0,001$, respectively). It is indicative of a complicated effect of multiple pregnancy on perinatal results.

Comparative assessment of newborns' condition in case of different methods of delivery showed that condition of newborns was not always better after cesarean section. However, there were more complications from the side of mother and fetus (20%). It should be noted that 4 women with twin pregnancy after application of ART delivered spontaneously. Their children were born without asphyxia. Therefore, the data obtained are indicative of the fact that cesarean section is not a selective method of delivery in case of multiple pregnancy. The issues concerning this operation in case of multiple pregnancy should be considered more thoroughly.

Conclusions:

1. Multiple pregnancy is characterized by the tendency to miscarriage. The threat of its interruption increases with the term of gestation.

2. Multiple pregnancy is associated with development of anemia making the condition of mother and fetus worse.

3. Careful antenatal screening of infections is of great practical value: it will promote decrease of preterm delivery, intrauterine infection of the fetus, developmental retardation of fetus, perinatal sickness and mortality rates.

4. Exhaustion of adaptation mechanisms of the uterine-placental circulation and anemia available result in retardation of the intrauterine development of fetuses in case of multiple pregnancy.

5. In case of multiple pregnancy the share of surgical delivery is rather high which does not

improve the condition of a newborn and requires careful consideration.

Prospects of further studies: to improve prevention methods of miscarriage and objectification of fetal conditions in case of multiple pregnancy.

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