

Stepwise Prediction of Perinatal Outcomes for Gestational Diabetes Mellitus

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Abstract On the basis of the retrospective analysis of 35 case reports of labor and the neonatal with gestational diabetes on pregnancy (using criteria of the nonparametric statistics) are revealed development the effects of gestational diabetes on pregnancy, labor and the neonate: complication and outcomes in birth. So, among development the effects of gestational diabetes on pregnancy it is revealed: obesity - 34,8%, the burdened heredity on a diabetes in 21,7%, a first labour aged is more senior 30 years - 65,2%. Presence the effects of gestational diabetes on pregnancy has complicated of the present pregnancy: imminence miscarriages - 52,1%, anaemia I - 17,3%, OPH-gestosis - 65,2%, in 8,7% - it was registered progressive stage. The Cesarean section in 65,2%, among them ahead of schedule - 16,8% was the indication for management by operation. The number of neonatal with not complicated period has made 26,1%. The pregnancy at patients with gestational diabetes becomes complicated stratification progressive stage of OPH-gestosis that aggravates a current of the basic disease, with formation diabetic complication in birth that the indication for management by the Cesarean section. Early neonatal period is characterised by an adverse current and does not depend on a way management labor, at these child has insufficiency of cerebral system are more often observed.

Keywords Gestational diabetes

1. Relevance

The development of gestational diabetes is the result of stress on the beta cells of the pancreas. In a normal pregnancy, insulin sensitivity is halved. Gestational diabetes mellitus develops when there is an inability to increase insulin secretion to a sufficient level to maintain euglycemia. The threshold at which glucose intolerance adversely affects pregnancy and increases the risk of future diabetes in the mother and her baby varies from case to case. The incidence of gestational diabetes varies from 2% to 8% [2]. About 2/3 of women have at least one of the following risk factors: family history of diabetes mellitus, history of gestational diabetes mellitus, glucosuria or clinical symptoms of diabetes mellitus during a previous or current pregnancy, fasting capillary blood glucose level above 5.5 mmol / l or more than 7.8 mmol / l 2 hours after eating, obesity, body weight of the previous child at birth more than 4000 g, unexplained fetal death or congenital anomalies of its development, polyhydramnios and / or the presence of a large fetus, age over 30 years, arterial hypertension, severe forms of preeclampsia in history [3]. Despite ongoing screening and dynamic monitoring of a patient with gestational diabetes, the incidence of complications in newborns does not tend to decrease and varies from 12% to

28% [1]. The most common complications are fetal macrosomia (diabetic fetopathy), hyperbilirubina, hypoglycemia after birth, hypocalcemia, thrombocytopenia, and other abnormalities.

2. Purpose of the Study

To study the features of the course of pregnancy, childbirth and the condition of newborns in patients with gestational diabetes mellitus. Assess the outcome of childbirth depending on the method of delivery.

3. Material and Research Methods

The diagnosis of gestational diabetes mellitus was confirmed by the data of complex clinical, laboratory and instrumental methods of examination. To assess the intrauterine state of the fetus, ultrasound was performed using transabdominal scanners, dopplerometry, and CTG. According to the indications, an ECG, ECHO-CS, ultrasound of the liver, kidneys, and thyroid gland were performed. The condition of the newborn was assessed in the delivery room at the end of 1' and 5' on the Apgar scale. Examination and clinical and laboratory examination of children were carried out according to the generally accepted method [4]. Mathematical and statistical processing of the data was performed using the criteria of nonparametric

statistics (χ^2 , Mann-Whitney U-test, Wilcoxon T-test) with significance of differences in values at $p \leq 0.05$.

4. Research Result

The socioeconomic status of pregnant women in this group was stable: 86.9% of women were married; 82.6% were engaged in light physical labor, all patients lived in the city - 100%. When analyzing risk factors for the development of gestational diabetes, it was found that obesity occurred in every third patient - 34.8%, heredity for diabetes mellitus was aggravated in every fifth - 21.7%, the first births over the age of 30 years occurred in more than half cases - 65.2%. Among the patients in this group, primiparous women predominated, who already had one or more pregnancies in their anamnesis - 60.8%. When analyzing the outcomes of previous pregnancies in patients of this group, it was noted that 78.9% had an abortion before 12 weeks, 15.7% had a spontaneous miscarriage, and 10.5% had a miscarriage. The first pregnancy, the first birth took place only in 6 women - 42.8%. Of the transferred gynecological diseases, cervical erosion was diagnosed in 52.1%; colpitis, infertility - occurred in 8.7% of cases. When studying the course of a real pregnancy, it was revealed that pregnant women were more likely to have a threat of abortion - 52.1%, anemia of the first degree - 17.3%, long-term preeclampsia - 65.2%, 8.7% - severe preeclampsia was recorded. When studying CTG in dynamics from 30 weeks to the term of delivery, it was revealed that the average number of fetal movements per hour was 41.8 ± 1.3 ; basal rhythm frequency - 139.1 ± 1.2 ; acceleration >10 beats/min. & 15 sec. - 4.06 ± 0.8 ; acceleration >15 beats/min. & 15 sec. - 2.4 ± 0.9 ; deceleration >20 lost hits - 0; STV - 9.6 ± 0.6 . When studying the conclusions, a normal type of CTG was recorded in 86.9%. The gestational age at the time of delivery was 37.6 ± 2.4 weeks. Premature births occurred in 34.7%. Delivery at term - in 65.2%. 34.7% went into labor on their own. 65.2% of patients were delivered by caesarean section, among them ahead of schedule - 16.8%. The indication for operative delivery during pregnancy in all women was a long-term combined preeclampsia. Layering of hypertension occurred in 17.8% of cases, a large fetus - in 34.7%, diabetic fetal fetopathy - in 39.1%, a scar on the uterus - in 17.3%, in 34.7% - decompensation of diabetes mellitus as vascular complications. Indications for operative delivery in childbirth were prenatal rupture of amniotic fluid in 65.2% of cases, primary weakness of labor activity in 34.7%, the first forthcoming birth at the age of over 30 years in 21.7%, anatomically in 30.4% narrow pelvis. A total of 23 newborns were born from mothers with gestational diabetes mellitus. Of these, with an Apgar score of 8-10 points - 3 children (13.0%), 6-7 points - 18 children (78.2%), < 6 points - 2 children (8.7%). Clinical manifestations of pathology in the early neonatal period were perinatal brain damage - 65.2%, neurological symptoms in the form of hyperexcitability or depression - 78.9%, muscle hypotension

or hypertonicity - 74.7%, diabetic fetopathy in the form of a disproportionate physique - 34, 7%. Moreover, there were no significant differences in the condition of newborns depending on the method of delivery ($p > 0.05$). Changes in the CNS of the newborn, which were described as cerebral ischemia of I-II degree, were the leading non-specific manifestations. The frequency of such symptoms was 52.1%. The number of newborns with a maximum loss of body weight in the early neonatal period of 5-7% of the initial at birth was 34.7%. This indicator less than 3% was diagnosed in 65.3% of the newborn, respectively. The number of children with an uncomplicated period of neonatal adaptation was 26.1%. 65.2% of newborns were discharged home in a satisfactory condition; 34.8% of children needed further treatment. The course of pregnancy in patients with gestational diabetes mellitus is complicated by the layering of long-term gestosis, aggravating the course of the underlying disease with the formation of diabetic fetopathy, which is most often an indication for early surgical delivery. The early neonatal period in newborns is characterized by an unfavorable course and does not depend on the mode of delivery. In these children, violations of the functional state of the central nervous system are more often observed.

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