ORIGINAL ARTICLE

CONTENTS

Features of pregnancy and childbirth in mothers and girls suffering from abnormal uterine bleeding during puberty

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ABSTRACT

Aim: To determine the peculiarities of the course of pregnancy and childbirth in mothers whose children suffer from abnormal uterine bleeding during puberty.

Materials and Methods: The study involved examination of 95 girls aged 10 to 18, who were divided into clinical groups: clinical group I (main (MG)) – 65 girls with abnormal uterine bleeding during puberty, clinical group II (control (CG)) – 30 somatically healthy girls, who came to clinic for a medical checkup.

Results: Assessment of histories on the condition of mothers during pregnancy and childbirth in the MG showed existing gestational disorders. Thus, in MG, mothers were 17 times more likely to suffer from extragenital disorders, 15–20 times more likely to suffer from colds, 10 times more likely to suffer from toxicosis in the first half of pregnancy and preeclampsia, and 8 times more often to have placental dysfunction. Childbirths of mothers of MG girls were characterized by a pathological course: premature discharge of amniotic fluid, weakness of labor, preeclampsia during childbirth, fetal distress. In MG, operative deliveries were resorted to 13 times more often. In addition, birth trauma occurred in 15.38% of newborns, asphyxia at birth in 41.53%, and hypoxic-ischemic brain damage in 23.07%.

Conclusions: During the analysis of history data, peculiarities of the course of pregnancy and childbirth in mothers whose children suffer from abnormal uterine bleeding during puberty were revealed. The mothers of these girls have a complicated course of pregnancy and childbirth. Pathological effects on the fetus in the ante- and intranatal periods create the basis for the development of pathological puberty, which can manifest itself in the form of abnormal uterine bleeding.

KEY WORDS: abnormal uterine bleeding, pubertal period, gestational disorders, features of childbirth

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INTRODUCTION

Reproductive health is one of the most important components of human health in general, and its provision, especially for adolescent girls, is one of the main steps in maintaining the health of the family and society. It is the reproductive health of teenage girls that determines population growth in the future, which is very relevant in the modern conditions of war and economic instability due to an unfavorable demographic situation [1,2].

Abnormal uterine bleeding (AUB) is defined as a significant change in the nature or volume of menstrual blood flow, caused by a number of diseases of the genital and non-genital tracts, systemic disorders, as well as taking some medications [3]. The incidence of AUB of the pubertal period in the structure of gynecological diseases of childhood and adolescence varies from 20% to 37% of all gynecological abnormalities of adolescence and makes up 50% of adolescent girls' requests for gynecological care [4]. An equally serious problem is the persistence of menstrual cycle disorders, in particular recurrent uterine bleeding, in 38% of women in the later years of their lives. In addition, patients with AUB of the pubertal period have a history of primary infertility, miscarriage, complications during pregnancy and childbirth, and the probable development of hormone-dependent tumors [5, 6]. AUB affects all aspects of life: from study, work, sports to the performance of daily duties, that is, it significantly reduces the quality of life [7].

FIGO uses the PALM-COEIN system classification to determine the etiology of AUB (polyp, adenomyosis, leiomyoma, malignant tumor, hyperplasia – structural causes; coagulopathy, ovulatory dysfunction, endometrial, iatrogenic and not yet classified – non-structural causes) [8]. Only in 1.3–1.7% of cases, AUB occurs in adolescents due to structural problems [9]. Coagulopathy is also the leading etiology of AUB in adolescents, which accounts for 5–28%, according to various researchers, of the number of hospitalized adolescents with AUB [10, 11]. Anovulatory cycles, which manifest as amenorrhea, oligomenorrhea, or

AUB due to an immature hypothalamus-pituitary-ovary axis, are mostly the cause of AUB in the pubertal period [12, 13].

Recently, there is more and more evidence of the influence of intrauterine development on the state of the body during puberty. This is mostly related to the timing and process of puberty in teenage girls. Most studies report an association between intrauterine growth retardation and earlier pubertal development [14] or normal pubertal development but with rapid progression [15]. However, it is quite difficult to compare the results of such studies, since they use different methodologies.

It can be assumed that disorders of menstrual function are more often formed in girls born to mothers with a course of pregnancy against the background of preeclampsia, chronic fetoplacental insufficiency, which became the cause of fetal growth retardation syndrome. The triggering mechanism of these obstetric complications is the syndrome of endothelial dysfunction, which is the cause of fetal growth retardation syndrome [16, 17].

AIM

To determine the peculiarities of the course of pregnancy and childbirth in mothers whose girls suffer from abnormal uterine bleeding during puberty.

Materials and methods. The study was conducted at the department of obstetrics, gynecology, pediatric gynecology and medical genetics of KhNMU, in particular at the following clinical bases of the department: municipal non-profit enterprise "City Maternity Hospital No. 1" ("CMH No. 1") of Kharkiv City Council and a communal health care facility "Regional Children's Clinical Hospital No. 1" ("RCCH No. 1").

The study involved examination of 95 girls aged 10 to 18, who were divided into clinical groups: clinical group I (main (MG)) – 65 girls with abnormal uterine bleeding during puberty, clinical group II (control (CG)) – 30 somatically healthy girls, who came to clinic for a medical checkup. The patients of the main group were treated in the gynecological department of "CMH No. 1" and in the surgical department No. 4 of "RCCH No. 1". According to the provisions of the Helsinki Declaration of the World Medical Association of the latest revision, all girls or parents of girls involved in the study signed an informed consent for the use of examination data for scientific purposes.

Exclusion criteria were as follows: absence of bleeding during hospitalization, oncological, acute infectious diseases, pregnancy, developmental abnormalities and injuries of the reproductive system, disorders of the blood system and acute surgical diseases, unwillingness of parents and patients (aged ≥14 years) to give voluntary informed consent to conduct research.

All the patients underwent a full clinical and laboratory examination. The study implied assessment of history data of the girls' mothers regarding the course of their pregnancies.

Processing of statistical data was carried out using the Statistica Basic Academic 13 for Windows general-purpose software package. Comparison of the frequencies of binary features of independent groups was carried out using the analysis of 2x2 tables ("chi-square" criterion).

RESULTS

The study showed that the age of the girls of the main group (MG) ranged from 10 to 18 years with a median of 14 years, of the control group (CG) - from 11 to 16 years with a median of 13 years. MG girls suffered from concomitant extragenital disorders (ED): overweight – 15 (23%), diseases of the cardiovascular system – 16 (25%), diseases of the respiratory system – 18 (28%), diseases of the gastrointestinal tract – 24 (37%). Combined extragenital disorders were found in 8 (12%) girls. CG was found to have the following ED: diseases of the respiratory system - 3 (10%), diseases of the gastrointestinal tract - 5 (17%).

Analysis of the course of pregnancy in the mothers of CG and MG girls showed that during pregnancy they suffered from colds, in particular in the 1st trimester in MG pregnancy - 31 (48%) women, in CG - 2 (7%); in the II trimester in MG – 25 (26%) women; in the III trimester, MG – 21 (32%) women, CG – 1 (33%) woman. Mothers of girls with AUB also had toxicosis in the first half of pregnancy, which manifested itself in the form of nausea and vomiting: in MG - 31 women (48%), in CG - in 3 (10%). The second half of pregnancy was complicated by preeclampsia of various degrees of severity in MG in 20 women (31%), in CG – in 2 (1%) women, as well as placental dysfunction in MG in 24 (37%) women, in CG – in 3 (10 %). Iron deficiency anemia occurred in 19 (29%) MG women and 4 (13%) CG women. Exacerbation of chronic pyelonephritis during pregnancy occurred in 21 (32%) MG women and 3 (10%) CG women. 34 (52%) mothers of examined MG and 2 (7%) CG girls suffered from extragenital disorders. The threat of spontaneous abortion in the 1st trimester was present in 17 (26%) MG and 2 (7%) CG women. The threat of spontaneous abortion in the II trimester occurred in 10 (15%) women, and fetal growth retardation syndrome (FGR) in 8 (12%) mothers of MG girls.

Table 1. Peculiarities of pregnancy in mothers whose daughters suffer from abnormal uterine bleeding during puberty

Index	Main group, absolute number (%)	Control group, absolute number (%)	Chi-square test
A cold in the first trimester of pregnancy	31 (48)	2 (7)	p=0.0001
A cold in the second trimester of pregnancy	25 (26)	-	
A cold in the third trimester of pregnancy	21 (32)	1 (3)	p=0.0019
Toxicosis in the first half of pregnancy	31 (48)	3 (10)	p=0.0004
Preeclampsia	20 (31)	2 (7)	p=0.0096
Iron deficiency anemia	19 (30)	4 (13)	p=0.788
Exacerbation of chronic pyelonephritis	21 (32)	3 (10)	p=0.0200
Placental dysfunction	24 (36.92)	3 (10,00)	p=0.0068
Extragenital disorder	34 (52)	2 (7)	p=0.0000
A threat of spontaneous abortion in the first trimester	17 (26)	2 (7)	p=0.0273
A threat of spontaneous abortion in the second trimester	10 (15)	-	
Fetal growth retardation syndrome	8 (12.30)	-	

Table 2. Peculiarities of the course of childbirth of mothers whose girls suffer from abnormal uterine bleeding during puberty

Index	Main group, absolute number (%)	Control group, absolute number (%)	Chi-square test
Premature discharge of amniotic fluid	25 (26)	1(3)	p=0.0004
Cesarean section	26 (40)	2 (7)	p=0.0019
Preeclampsia in childbirth	3 (5)	-	
Weakness of labor (without caesarean section)	19 (29)	1 (3)	p=0.0040
Weakness of labor (reason for caesarean section)	9 (14)	1 (3)	p=0.0665
Clinically narrow pelvis	4 (6.15)	-	
Premature birth	5 (8)	-	
Fetal distress	18 (28)	2 (7)	p=0.0195
Asphyxia at birth	27 (42)	1 (3.33)	p=0.0001
Birth trauma	10 (15.38)	-	
Hypoxic-ischemic damage of the brain	15 (23)	-	

As can be seen from the Table 1, the differences in incidence of the most indicators were statistically significant.

Labor activity of the mothers of the examined MG girls was characterized by a pathological course, in particular, preeclampsia during childbirth in 3 (5%), clinically narrow pelvis in 4 (6%) women. Mothers of the control group did not have these abnormalities. Premature discharge of amniotic fluid occurred in 25 (26%) MG women and in 1 (3%) CG woman. 26 (40%) MG mothers and 2 (7%) CG mothers had operative deliveries. Weakness of labor, which was subject to medical correction, was noted in 19 (29%) women of MG and in 1 (3%) person of CG, weakness of labor, which was not subject to medical correction (birth was completed surgically), in 9 (14%)) of MG women and in 1 (3%) CG. Premature birth occurred in 5 (8%) mothers. Fetal distress was registered in 18 (28%) MG women during childbirth, while 2 (7%) women in CG had it. Birth asphyxia occurred in 27 (42%) MG newborns and in 1 (3%) CG newborn. Childbirth trauma was registered in 10 (15%) newborns, hypoxic-ischemic damage to the brain of newborns in 15 (23%) MG children; there were no such changes in CG.

As can be seen, the incidence of the most indicators was also statistically significant (Table 2).

DISCUSSION

Protection of reproductive health of children and adolescents is one of the urgent problems of modern medicine in most countries. This is due to the unfavorable

medical and demographic situation in the world and the deterioration of the health of women in the fertile period. In the structure of gynecological diseases of teenagers, the leading place is occupied by abnormal uterine bleeding during puberty. Increasingly, this abnormality takes on a protracted character and is often accompanied by relapses [18]. The formation of a young woman's reproductive health begins with the period of puberty, during which the neuroendocrine reorganization of the body and the intensive work of all organs and systems take place. The premorbid background as a set of pathological and physiological changes, which often complicate the course of the disease or create a certain basis for the development of changes in the body in the future, can also be a trigger for the development of pathological puberty in girls. The presence of chronic extragenital diseases, the unfavorable course of pregnancy and childbirth in their mothers - all this forms a negative premorbid background in the examined girls suffering from AUB during puberty. An indicator of the reproductive health of adolescent girls is a timely menarche and a regular rhythm of menstruation [19].

Assessment of history data on the condition of mothers during pregnancy and childbirth in the MG showed existing gestational disorders. Thus, in MG, mothers were 17 times more likely to suffer from extragenital disorders, 15–20 times more likely to suffer from colds, 10 times more likely to suffer from toxicosis in the first half of pregnancy and preeclampsia, and 8 times more often to have placental dysfunction. The births of mothers of MG girls were characterized by a pathological course: premature discharge of amniotic fluid, weakness of labor, preeclampsia during childbirth, fetal distress. In MG, operative deliveries were resorted to 13 times more often. In addition, birth trauma occurred in 16% of newborns, asphyxia at birth in 41%, and hypoxic-ischemic brain damage in 23%. These data are consistent with the opinion of the authors about the possibility of the formation of pathological puberty in girls who suffered in utero, that is, whose mothers underwent a pathological period of gestation and childbirth [20, 21]. In addition, according to V.D. Markovsky et al., there is a violation of the establishment and formation of the main structural components of the female genital organs of fetuses with signs of FGRS, which in the future can lead to the development of functional insufficiency of these organs. [22]. In our study, FGRS occurred in 12% of MG fetuses.

CONCLUSIONS

During the analysis of history data, peculiarities of the course of pregnancy and childbirth in mothers whose girls suffer from abnormal uterine bleeding during puberty were revealed. The mothers of these girls have a complicated course of pregnancy and childbirth. Pathological effects on the fetus in the ante- and intranatal periods create the basis for the development of pathological puberty, which can manifest itself in the form of abnormal uterine bleeding.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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