

Comparative Characteristics Course of Pregnancy and Delivery Outcomes of Young and Elderly Mothers

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ABSTRACT

This article presents the features of pregnancy in adolescence and old age associated with a high risk of adverse outcomes both during pregnancy and childbirth, and in the later period.

The purpose of our study was to identify the features of pregnancy and childbirth, the postpartum period in young and elderly mothers.

Materials and methods. The history of pregnancy, childbirth and individual charts of newborns (n=330) were retrospectively analyzed, of which group I (n=150) – young pregnant women aged 13-18 years, group II (n=80) – pregnant women of favorable reproductive age (20-25 years) and group III (n=100) – women of late reproductive period (40 years and older).

Results. It was found that young primiparous women are somatically healthier, but sexually transmitted infections are significantly more common in the group of underage pregnant women (p-III=0.043) than in the group of late reproductive period. Pregnancy in adolescents often occurs against the background of anemia, placental insufficiency, moderate preeclampsia, childbirth is complicated by a large percentage of injuries. In the group of women of late reproductive age, diseases of the cardiovascular system, mainly arterial hypertension, obesity, and liver diseases predominate.

Conclusion: Pregnancy in adolescent girls, as well as in age-related primiparous women, is a serious medical and social problem. Pregnant women in these groups are at high risk for miscarriage and require an individual approach to the management of pregnancy and childbirth.

Keywords: Adolescent pregnancy, elderly pregnancy, features, childbirth, postpartum period

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INTRODUCTION

Adolescent pregnancy is associated with the development of not only medical, but also social problems [1]. A large number of studies have shown that early pregnancy is associated with the development of chronic psychological stress. An extremely negative attitude towards young pregnant women on the part of medical professionals, relatives, and society as a whole is also important [2,3]. The problem is also compounded by social and family is not well-maintained. One of the characteristic features of teenage pregnancy at the present stage is its frequent development on the background of chronic infectious diseases of the genital organs, due to the increase in sexual activity in a modification of sexual behaviour (increase in number of sexual partners, non-traditional types of sexual activity, drug abuse) [2,4]. A direct consequence of this is an increase in the number of unwanted pregnancies among adolescents. According to literature data, among pregnant girls aged 15 to 19, the onset of pregnancy was unplanned in 82% of cases. In a study conducted by H. S. Connery and B. B. Albright (2014), it was shown that unwanted pregnancy is associated with a potentially high risk of exposure to various adverse factors (including Smoking, alcohol) on fetal health, since about 58% of unplanned pregnancies are confirmed only after 5 weeks of gestation. The high prevalence of teenage pregnancy is observed not only in Russia, but also in Western Europe and the United States of America. For example, in the United States, in 2008, the pregnancy rate among adolescents aged 15 to 19 was 68 per 1000 (in 1998, this figure was 117 per 1000). It is important to note that, according to these statistics, from

64 to 76% of all cases are teenagers aged 18 to 19 years and only less than 40 % of girls aged 15 to 18 years [4,5]. Pregnancy during adolescence is associated with a high risk of adverse outcomes both during pregnancy and childbirth and later in life. According to who, about 16 million births to girls between the ages of 15 and 19 are registered annually, and almost all of them occur in developing countries [3,32]. Although adolescent pregnancy rates are declining globally, there is a significant difference in rates at the regional and national levels [6-9]. Early pregnancies are more common among the least affluent and least educated adolescents. For some of these girls, pregnancy and the birth of a child is an expected and desired event, but not for everyone. There are several factors that cause this [10,12]. Often girls do not get pregnant of their own volition, because they do not know how to protect themselves, or because they are forced to have sexual relations. Pregnant adolescents have more limited access to safe termination of pregnancy and to qualified medical care during the prenatal period, during childbirth and after the birth of a child [5,11]. It is believed that the main causes of these complications are biological and socio-economic factors. The most common socio-economic risk factors are low level of education, insufficient prenatal care, and low social status. Biological immaturity also affects the risk of adverse pregnancy outcomes [13]. Lack of proper prenatal care, insufficient weight gain, and Smoking during pregnancy are considered risk factors for adverse outcomes among newborns, including low birth weight, preterm birth, and infant mortality. Some medical risk factors may also affect the health of the mother and child. It is shown that only 47% of adolescents receive adequate

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medical supervision in the first trimester of pregnancy, while among women aged 20 and over, this figure is about 78 %. Only 11.6% of adolescents receive adequate follow-up at later stages of pregnancy, and 5% do not go to medical institutions at all during the entire pregnancy [14,15,16].

In recent years, the medical and social aspects of youth reproductive health have become particularly relevant in connection with the problem of qualitative and quantitative reproduction of the population, as well as the deterioration of the health of mothers and their children. Who States that the optimal age for giving birth to a child is between 20 and 30 years? Both early (under 19 years of age) and late (over 35 years of age) births often have an adverse effect on the health of women and children [9,23].

Late delivery is also a medical and social problem. Only 5% of 40-year-old women have a successful pregnancy. It is established that pregnancy in forty-year-old primeval and older can be more difficult than at an age favorable for childbearing. Age-related pregnant women are at greater risk of complications such as hypertension, gestational diabetes, miscarriage, placental insufficiency, and a high percentage of operative deliveries. The number of cases of genetic pathology and malformations in the fetus during pregnancy after 40 years is significantly higher than among women of favorable reproductive age [17,18].

Thus, pregnancy in adolescent girls, as well as in age-related primiparous mothers, is a serious problem. A comparative assessment of the course of pregnancy and childbirth in these age groups is of particular interest.

The aim of the study is to determine the specific course of pregnancy, the outcome of childbirth and the health status of newborns in the city of Shymkent (Kazakhstan) in different age groups.

MATERIALS AND METHODS

The study was conducted on the basis of the perinatal center of Shymkent. The city's perinatal center is a large health care facility with an annual number of births of more than 3,500. The method of a retrospective epidemiological case-control study (analysis of archival materials for 2015-2019) was chosen for the research. Statistical data processing was carried out using the integrated system for complex statistical analysis and data processing "Statistica 6.1»

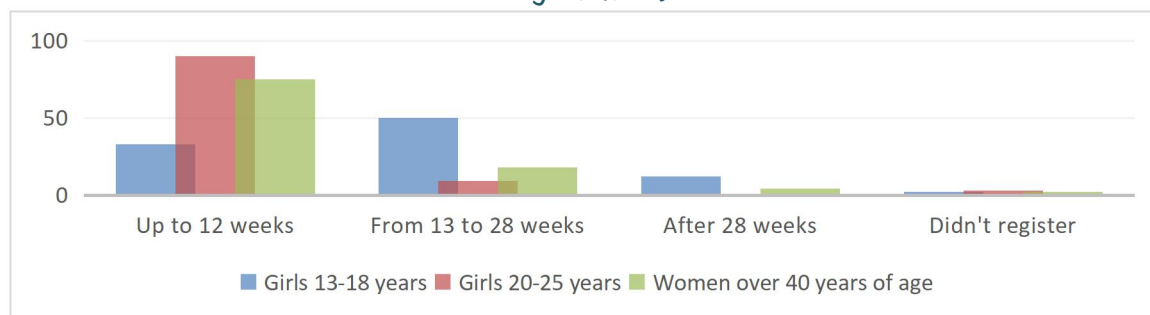
The critical significance level for testing statistical hypotheses was assumed to be 0.05. Since the distribution of indicators was nonparametric, Pearson's Chi-square (χ^2) with the Yates correction was used to compare the groups. The authors retrospectively analyzed the history of pregnancy, childbirth and individual charts of newborns (n=220), of which the main (I) group (n=150) – young pregnant women aged 13-18 years, the comparison group (III) (n=100) – women of the late reproductive period (40 years and older), the comparison group (II) (n=80) – pregnant women of favorable reproductive age (20-25 years). Criteria for inclusion of patients were such indicators as residence in the city of Shymkent, voluntary informed consent, all women were primiparous. Anamnestic data were studied, the level of physical and sexual development of adolescents, as well as the course of pregnancy, somatic and gynecological health of patients were evaluated.

Results and discussions. The study revealed that the average age of the examined pregnant women was in group I - 15.7 ± 0.63 years, in group II - 24.1 ± 1.27 years, in group III - 43.5 ± 1.87 years. According to our data, the average age of menarche significantly differed in groups I and III of the study and was 12.4 ± 1.26 years for group I, 14.02 ± 1.23 years for group III ($p_{I-III}=0.001$), and 13.9 ± 1.52 years for group II. There were statistically significant differences in sexual debut between groups I and III ($p_{I-III}=0.001$). The average age at the beginning of sexual activity: in the group of young pregnant women 13-17 years (I) - 14.7 ± 1.2 years, in the group of girls 20-25 years (II) - 18.9 ± 1.1 years, in the group of women 40 years and older (III) - 18.9 ± 1.26 years. The study of social status revealed that all young pregnant women in the first group were University students-3.6%, schools-44.2%, colleges-8.3% and Housewives-44.2%. In groups II and III, higher education is provided for girls, in (II) group - 79.4%, in (III) group - 67.1% of women.

The results of the conducted studies showed that the incidence of anatomically narrow pelvis is significantly higher ($\chi^2 =12.672$, $p=0.001$) in the group of young pregnant women (I) compared to the group of late reproductive age (III) and is respectively: I group - 33.7%, III group - 5%, in group II this indicator was 14%. Young pregnant women had a high infection index. 20% of underage pregnant women (I gr.) had a sexually transmitted infection, which is 4 times more often ($\chi^2 =4.400$, $p_{I-III}=0.036$) than in the group of women of late reproductive age (III gr.) - 5% and 12% more often ($\chi^2 =0.184$, $p_{III}=0.598$) than in the group of pregnant women of favorable reproductive age (II gr.) - 14%. Special attention should be paid to the initial initial state of the mother before delivery. It was revealed that the highest percentage of extragenital pathology (EGP) was observed in group III women - 73.3%, in young pregnant women (group I) this indicator was 52.9%, in group II - 63.3%. The most common pathology in all three groups were such diseases as anemia: in group I-68.3 %, in group II-50%, in group III-58% ($\chi^2 =0.929$, $p_{III}=0.335$); in groups I and II: kidney diseases-38.3% and 28% of cases, respectively ($\chi^2 =0.541$, $p_{I-II}=0.541$); vegetative-vascular dystonia (VSD) in 23.3% and 22% of cases, respectively ($\chi^2 =0.002$, $p_{I-II}=0.963$); in group III, diseases of the cardiovascular system prevailed, mainly arterial hypertension-44%, obesity-39%, diseases of the liver and biliary system - 18%. According to our data, 18 young pregnant women aged 13-18 years (15%) were pregnant against the background of chronic nicotine intoxication.

A risk factor contributing to the development of complications of pregnancy and childbirth was late registration for pregnancy. We found statistically significant differences in the groups: only a third of young pregnant women (group I) (34.8%) went to a women's consultation before 12 weeks, which is 2.4 times less than in the group of women of favorable reproductive age (group II) – 83.52% ($\chi^2 =11.916$, $p_{I-II}=0.001$) and 2 times less than in the group of women of late reproductive age (group III) ($\chi^2 =6.764$, $p_{I-III}=0.016$). The majority of patients in group I (50%) were registered at a period of 13 to 28 weeks, after 28 weeks – 13.2% of young pregnant women, 2% of young primiparous women were not under observation (figure 1).

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Fig

Figure 1. Gestational age at the time of registration

With late turnout, the percentage of coverage for biochemical screening at 8-13 weeks and ultrasound screening for determining congenital fetal abnormalities and chromosomal abnormalities at 12-13 weeks is significantly reduced in young pre-pregnancies. The nature of pregnancy and its complications is of particular interest. We found statistically significant differences in the development of early toxicosis in the group of underage pregnant women in comparison with the group of women of late reproductive age (p I - III = 0.007). The frequency of this pathology was 30% in group I, 12% and 6% among pregnant women in groups II and III,

respectively. The risk of termination of pregnancy and moderate preeclampsia is also high in group I (24.2% and 20.8%, respectively). However, the highest percentage of these pregnancy complications was detected in group III (age-related pregnant women): the threat of termination of pregnancy in group I was noted in 24.2% of cases, group II-20%, group III-48% (PI-III=0.048), moderate preeclampsia in group I-20.8%, group II-6% and group III-30% (p I-II = 0.066; p II-III = 0.018), placental insufficiency in 10.8%, 14% and 18% of cases, respectively (table 1).

Table 1. Prevalence of the complications during the pregnancy

COMPLICATIONS DURING PREGNANCY	I (13-18 years) N = 150 (%)	II (20-25 years) N = 80 (%)	III (40 years of age) N = 100 (%)	SIGNIFICANCE of DIFFERENCES, χ^2 / P		
				I-II	I-III	II-III
Threat of termination of pregnancy	24,2	20	48	0,075 0,785	3,902 0,048	3,557 0,059
Early morning sickness	30	12	6	3,224 0,073	6,800 0,009	0,372 0,542
Moderate preeclampsia	20,8	6	30	3,387 0,066	0,649 0,421	5,569 0,018
Placental insufficiency	10,3	14	18	0,190 0,663	0,820 0,365	0,038 0,645
Anemia of pregnant women	68,3	50	58	0,929 0,335	0,215 0,643	0,073 0,767
Congenital malformation	2,5	2	6	0,133 0,716	0,394 0,526	0,222 0,638

In 6.0% of cases, congenital malformations of the fetus were detected in the group of age-related pre-pregnancies (group III), which is 4% more often than in the group of reproductive age (2%). Analysis of the birth history showed that natural birth was observed in 73% of young pregnant women (group I), in 54% of cases in pregnant women of favorable reproductive age (group II) and in 40% of age-related pregnant women (group III). The frequency of operative delivery is statistically significantly higher in the group of women of the late reproductive period (group III) 60%, which is 2.2 times more often than in the group of young women (group I - 27%, group II - 46%, p I-III=0.011).

One of the main causes of adverse perinatal outcomes in children born to adolescent mothers is hypertensive disorders during pregnancy. The frequency of hypertensive disorders among pregnant adolescents was 18% (36 cases), which is 3 times higher (6%) than among women aged 20 to 30 years [19,20-24]. Complications that develop in children with severe hypertensive disorders are determined by a complex of hypoxic and metabolic disorders, associated with

immaturity of the cardiovascular system, which is the main factor leading to damage to the Central nervous system [7,25]. The most common pathologies in children with gestosis in the antenatal period are chronic hypoxia and fetal growth retardation, as well as their combination, in the postnatal period - prematurity, respiratory distress syndrome, asphyxia, and cerebral disorders [26]. Results of a study conducted by T. Ganchimeg and E. Ota (2014) showed that the risk of developing hypertensive disorders in unborn adolescent girls is 1.7 times higher than in adult patients [27].

The risk of death in the late neonatal period among children born to adolescent mothers is 1.5%, compared with 0.7% among mothers aged 20 years and older. The high frequency of perinatal complications is not directly due to the age of the first-born, and the most important are social risk factors, such as bad habits, insufficient financial security, unregistered marriage, burdened somatic and obstetric-gynecological anamnesis [28].

According to a large prospective study conducted by X. K. Chen and S. W. Wen (2007), childbirth in adolescents under 18 years of age was associated with a significant

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increase in the frequency of fetal hypoxia in childbirth and, consequently, a lower Apgar score. In addition, it has been shown that among children born to adolescent mothers, the risk of low birth weight is significantly higher. As with most other studies, high infant mortality was found, which is largely associated with a high rate of preterm birth in adolescents. According to the study, the risk of maternal mortality was higher among patients under the age of 16 and correlated with socio-demographic factors such as poverty, low level of education, insufficient prenatal care and social status [29]. One of the limitations of many studies of adolescent mothers is the lack of information about whether pregnancy is desirable, while this may affect a woman's behavior during pregnancy and her attitude to prenatal care. In addition, the prevalence of diet disorders, alcohol and drug abuse, is higher among adolescents, which can negatively affect unplanned pregnancy. Children born to adolescent mothers have a higher risk of maternal maltreatment and higher rates of chronic diseases, a higher incidence of accidents and injuries, and behavioral and emotional disorders. It is important to note that the higher prevalence of behavioral problems in children born to adolescent mothers is mainly due not to the young age of the mother, but to her psychological state when raising the child [30]. Literature data indicate that the social and psychological difficulties associated with early birth of the first child are long-term. However, there is no evidence that providing social support to pregnant adolescents, for example, with additional home visits, reduces the incidence among infants. Studies have shown that children born to adolescent mothers are at risk of developing cognitive and social deficits. Adverse social conditions, including lack of interaction with parents, child abuse, psychological violence in the family, verbal abuse and threats of physical violence during this critical period of development can have a profound impact on the formation of neural connections and neurotransmitter networks, which potentially leads to impaired brain development in children from adolescent mothers [31,32, 33, 34, 35].

DISCUSSION

The frequency of teenage pregnancy in the dynamics of the years has a downward trend, the number of young mothers only every 6-th received pregravidarnaya training, and 5 each have been avtomobilnoj, and is of avtomobilnyh to 19 years old at 45.9% had no experience of unsuccessful pregnancy in history, and only 54% avtomobilnyj with this pregnancy were able to carry the pregnancy to full-term period. Of those who gave birth during adolescence, only one-third were students, two-thirds had a secondary school education, and of this number of students, only 7.4% were enrolled in higher Education, while the remaining 92.5% were students of Susa [36-39]. Preventive work to prevent unplanned and adolescent pregnancies can be effective if the work is strengthened with this contingent. Girls who become mothers at an early age and have a low level of education are at high risk of re-pregnancy with short intervals between each child. The level of education among adolescent girls is highly correlated with their reproductive behavior and their level of health awareness. The occurrence of repeated pregnancy before the age of 19 in 18.5% indicates the ineffectiveness of the measures taken for contraception and family planning, in all 37 cases of repeated pregnancies, the recommended 2-year

intergenetic interval was not maintained in 100%. Childbirth in adolescence is associated with a high frequency of pathological deliveries (only 3 out of 10 physiological deliveries), a high frequency of instrumental interventions, a high frequency of maternal and perinatal injuries, and hospitalization of newborns in intensive care units [40, 41, 42, 43].

In the course of the study, we did not find significant differences in the incidence of newborns in the study groups. As a result of the analysis of fetal factors, the following data were obtained: birth of children in a state of asphyxia was registered in 24.2% of patients in group I, in 28% of patients in group II ($\chi^2 = 0.047$ p I-II=0.829) and in 38% of patients in group III ($\chi^2 = 1.351$ p I-III=0.245). Hypoxic damage to the fetal Central nervous system was diagnosed in 1.7% of group I newborns, 2% of group II newborns, and 5% of group III newborns. Intrauterine infection occurred in 3.3% of newborns from mothers aged 13-17 years and 4% of newborns from mothers aged 40 years and older, as well as newborns from mothers aged 13-17 years had a lower body weight and smaller height. The average weight of children born to pregnant women aged 13-17 years was 3048 (± 611.7) g, the average height of children was 50 (± 3.54) cm, in groups II and III, respectively, 3488 (± 469.3) g, 53.7 (± 2.23) cm and 3447 (± 493) g, 52.37 (± 2.73) cm.

CONCLUSION

Thus, the majority of young primiparous women have an earlier onset of sexual activity (15.7 years) in comparison with women of late reproductive age (p=0.001). By the time of pregnancy, young primiparous are somatically healthier. However, the presence of sexually transmitted infections is more common in the group of girls aged 13-18 years than in the group of women of late reproductive age ($\chi^2 = 4.400$, p I-III=0.036). In the group of women of late reproductive age, diseases of the cardiovascular system predominate, mainly arterial hypertension, obesity, liver and biliary system diseases.

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