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Is adolescent pregnancy associated with adverse perinatal outcome?

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1 Introduction

Although a continual and marked decrease in the total number of deliveries has been noted in Hungary, the incidence of adolescent pregnancies is increasing. Adverse perinatal outcome of adolescent gestations is controversial [3, 5, 6, 7, 8, 11]. Among teenage mothers, a higher rate of low birthweight as a consequence of prematurity and intrauterine growth retardation (IUGR) [4, 5, 7, 9] has been described. The role of the biological state of the young mother and/or the sociodemographic environment associated with poor perinatal outcome are only partly known. Marital state, educational level and inappropriate prenatal care are important risk factors for premature birth in this group [4, 5, 8, 9, 12].

The purpose of this study was to determine if adolescent pregnancies have poorer perinatal outcome. We compared the fetal and maternal complications in adolescent pregnancies to the general Hungarian pregnancy population.

2 Materials and methods

A retrospective analysis was made of all adolescent mothers (under 18 years of age) with more than 24 complete weeks of gestation, who delivered between 1st January, 1991 and 31st December, 1996 at our department. During this 6-year period, 13 131 births were recorded. The total number of adolescent pregnancies was 207 (1.58%). Of these, 205 were singleton gestations and two were twin pregnancies. The following parameters were analyzed: social background of mothers, maternal complications associated with pregnancy, type of delivery and fetal outcome. Gestational age was established by the last menstrual period, first-trimester ultrasonography or newborn examination. Prenatal care was considered adequate if the first visit was registered below 16 weeks of gestation and the number of check-ups equaled or exceeded four. We compared the data of adolescent mothers with the data of all mothers who delivered in Hungary (Hungarian Central Statistical Office and National Board of Social Workers) during the study period. Our department is a tertiary center, thus most high-risk pregnancies are transferred here from four counties. The Student t test and the χ^2 test were applied as indicated with significance level at $p < 0.05$. The trend was analyzed using a linear regression method.

3 Results

Figure 1 documents a reverse trend according to the number of deliveries by adolescent mothers and the total number of births at our department. Mean maternal age of adolescent mothers was 16.5 ± 0.8, 61.4% of them were 17 years old and one mother was under 14 years. The number of multiparous mothers was high 58 (28%). However, only 27.5% of all adolescent mothers attended secondary school, and 10.2% of them did not finish elementary school. According to

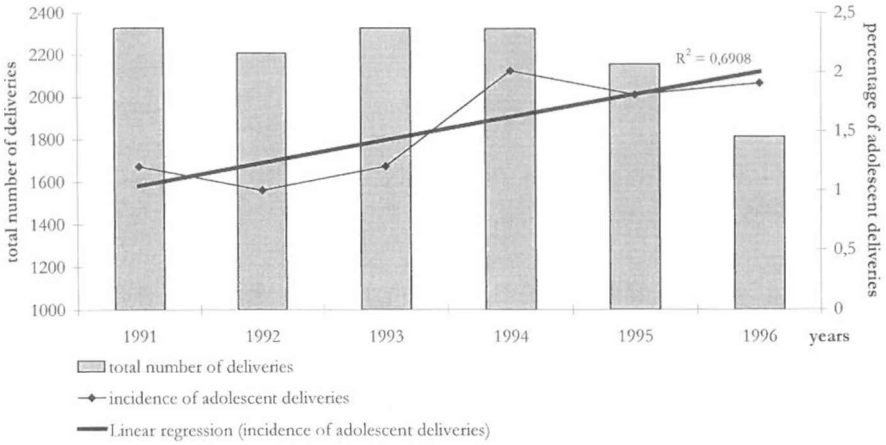

Figure 1. Incidence of adolescent deliveries at the Albert Szent-Györgyi Medical University

marital state, the rate of single mothers among adolescents was very high, 63.3 %. Two-thirds (65.7 %) of adolescent mothers attended prenatal care regularly, but 18.4 % of them never attended (table I), compared to 1.4 % in the general Hungarian pregnancy population. The average number of prenatal visits was 5.58 (0–15) in the study population and 9.2 (0–16) in the control group.

The rates of maternal complications during pregnancy are shown in table II. Pregnancy-induced hypertension (PIH) and threatened preterm delivery were more common among adolescents than among controls (the data were not sufficient for statistical analysis). Gestational diabetes and preeclampsia occurred significantly more frequently in pregnant adolescents than in the general Hungarian pregnant population (11.1 % versus 2.7 % and 11.6 versus 3.7 %, respectively).

The perinatal outcome is indicated in table III. The national rate of premature deliveries (8.2 %) is significantly better than in the adolescent group, where almost every fifth newborn (18.6 %) was premature (gestational age less than 37 complete weeks). Frequency of spontaneous vaginal delivery was the same in the adolescent group and in the control population (85.2 %). Operative vaginal delivery (using forceps or vacuum extraction) was performed significantly more often in adolescent deliveries (5.7 % versus 2.0 %). Frequency of caesarean section was similar in the two groups (9.1 % versus 12.8 %). The difference between the groups was not significant with regard to fetal presentation. Noticeable, but not significant, differences were found between the mean neonatal birth weights for the adolescent (2916 ± 653.6 gr) and the control group (3219 ± 782.5 gr). IUGR (birth weight below the tenth percentile for gestational age according to sex) occurred more often in the adolescent group than the national rate (16.3 % versus 8.6 %). The number of major congenital malformations observed in newborns was not significantly different in the two groups. The umbilical cord blood pH was less than 7.2 in 10.8 % of neonates from adolescent pregnancies. Transfer to the neonatal intensive care unit (NICU) was more common for newborns of adolescent mothers (7.2 % and 4.1 %). The perinatal mortality rate (intrauterine death after 24 weeks of gestation or newborn death in the first 168 hours) was four times higher in the adolescent group than in the control group (4.3 % and 1.1 %). Out of the 209 alive newborns 3 were taken to a council home or to foster parents.

4 Discussion

Over the last decades, a remarkable change has been noted in family life. Recently the coexistence of several generations has generally disappeared and only the parents and children live together in the so-called "nuclear-family". In this

Table I. Social data of the adolescent mothers

	n	%
maternal age		
< 14 years	1	0.5
14 years	4	1.9
15 years	19	9.1
16 years	56	27.1
17 years	127	61.4
education		
under elementary	21	10.2
elementary	129	62.3
attending a secondary	57	27.5
marital state		
single	131	63.3
partner in life	19	9.2
married	57	27.5
attending prenatal care		
regularly	136	65.7
irregularly	33	15.9
never	38	18.4
number of previous gestations		
0	131	63.3
1	47	22.7
2 or more	29	14.0
number of previous deliveries		
0	149	72.0
1	47	22.7
2 or more	11	5.3

Table II. Maternal complications

	adolescent		control*
	n	%	%
pregnancy-induced hypertension	3	1.4	0.6
gestational diabetes	23	11.1	2.7**
preeclampsia	24	11.6	3.7**
threatened preterm delivery	19	9.2	5.2

* National data
** Statistically significant difference ($p \leq 0.05$)

form of family life, changes of psychosocial attributes can be seen, the children have less opportunity to interact, have more emotional stress and less family support [1].

Nowadays, especially after the change of regime (the end of 1980s) sexual activity before marriage, extramarital sexuality and homosexuality are more accepted than ever. The increased availability of contraceptives and the liberalization of legal abortion have reduced fear of pregnancy. Sexual provocation in magazines, television and movies has increased, so the rate of early sexual initiation is rising. In addition, continual and marked acceleration of pubescence can be seen. On the basis of all these factors the number of adolescent pregnancies has increased throughout the world [2, 4]. The majority of teen mothers are ashamed and afraid of family, friends and schoolmates, thus they tend to hide their pregnancy, and they neglect to participate in prenatal care. In our study almost one fifth of adolescent mothers never attended prenatal care. We, as well as Fraser et al. [5], Scholl et al. [12] and Perkins et al. [10], have emphasized the importance of prenatal care, especially the need for early care for pregnant women of adolescent age. However, a deplorable attitude is prevalent among adolescents, in that they attend antenatal care significantly later than adult mothers. The lack of prenatal care is disadvantageous for both fetus and mother. Our study confirms the results of Fraser et al. [5], Fielding [4] and Otterblad Olausson et al. [9], indicating that maternal complications and an unfavourable perinatal outcome are very common in adolescent pregnancies. Interestingly, this contrasts with the findings of Plöckinger et al. [11], who observed no difference in perinatal outcome between the adolescent and the adult group. Numerous investigators have noted an increased incidence of premature deliveries among adolescents compared with adults [4, 5, 9]. The same findings were found in our study. Because of the higher perinatal morbidity and mortality rates, adolescent mothers should be provided with intensive ante-, intra- and postnatal care. Any attempt to prevent adolescent pregnancy must include the provision of contraceptives, sex education, efforts to arouse a more responsible attitude to pregnancy, and attempts to improve the social environment.

Table III. Perinatal outcome of newborns

	adolescent		control*	
premature	39	18.6%	8.2%	**
mature	170	81.4%	91.8%	**
mode of delivery				
spontaneous vaginal	178	85.2%	85.2%	
operative vaginal	12	5.7%	2.0%	**
cesarean section	19	9.1%	12.8%	
presentation				
cephalic	201	96.2%	96.1%	
breech	7	3.3%	3.5%	
transverse or oblique	1	0.5%	0.4%	
mean birthweight (g)	2916 ± 653.6		3219 ± 782.5	
IUGR	34	16.3%	8.6%	**
congenital malformation	5	2.4%	1.8%	
Apgar score at 5 min < 7	6	2.9%	#	
umbilical cord blood pH < 7.2+	12/111	10.8%	#	
newborn transferred to NICU	15	7.2%	4.1%	
perinatal mortality	9	4.3%	1.1%	**

* National data
** Statistically significant difference ($p \leq 0.05$)
+ Measurement was not performed in all cases
# Data not available

Abstract

Background: The number of teenage pregnancies has increased throughout the world and these pregnancies are reported in association with a higher rate of maternal and fetal complications.
Aim of the study: To evaluate the social surroundings; the results of ante-, intrapartum surveillance and perinatal outcome in adolescent pregnancies where mothers were below the age of 18.
Methods: Between 1st January, 1991 and 31st December, 1996 there were 13 131 births at our department. During this period, 209 newborns were born of 207 adolescent mothers. We compared the data of adolescent mothers with the data of all mothers who delivered in Hungary during the study period.
Results: 39 (18.6%) from 209 newborns were delivered before 37th week of gestation, and 34 (16.3%) newborns showed signs of intrauterine growth retardation (IUGR). The rate of primiparous adolescent mothers was 72.0%, 131 (63.3%) were primigravidae, and 136 (65.7%) received adequate prenatal care. Maternal complications (pregnancy induced hypertension, threatened preterm delivery, gestational diabetes and preeclampsia) and adverse perinatal outcome (higher rate of IUGR and perinatal mortality) were found more frequently in adolescent pregnancies.
Conclusions: As young maternal age is associated with an increased risk of unfavourable fetal outcome, teenage mothers need improved prenatal care and increased observation during labour. In addition, improvement of the social environment of adolescents and the prevention of teenage pregnancies should be recommended.

Keywords: Adolescent pregnancy, maternal complications associated with pregnancy, poor perinatal outcome.

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