

Pregnancy in adolescents

A case-control study

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Summary: Objective: to investigate pregnancy outcome and incidence of pregnancy-related disorders in the adolescent.

Design: a matched control retrospective study.

Subjects: pregnant adolescents aged 14 to 19 years admitted to the Departments of Obstetrics and Gynecology - Policlinico Umberto I, between the years 1984 and 1993; a comparable number of pregnancies aged 20 to 24 years was considered as a control group.

Results: in the 10 yrs. period a total of 304 pregnancies in adolescents were considered. Preterm deliveries were 9.5% in the adolescent group vs 5.9% in control ($P > 0.05$). A higher incidence was found in number of cesarean section ($P < 0.001$), spontaneous abortion ($P = 0.003$), intrauterine growth retardation ($P = 0.04$) and fetal distress ($P = 0.04$) in the adolescent group vs matched controls. Also mean birth weight was significantly lower in the adolescent group when compared with normal group ($P < 0.001$).

Conclusion: we found a higher incidence of obstetric complications, such as IUGR, acute fetal distress in labor and lower birth weight, in the adolescent group, resulting in a higher number of cesarean sections. We hypothesise that the relative state of "hypoarterialisation" characteristic of the adolescent uterus may be involved in the afore-mentioned complications.

Key words: Adolescence-Pregnancy.

INTRODUCTION

Over the years a number of studies have been carried out in order to address the problems linked to pregnancy in adolescents. However, the results of these studies are usually discordant regarding the incidence of pregnancy complications,

such as pregnancy induced hypertension (PIH), preterm delivery, placental abruption, cephalo-pelvic disproportion, cervical-vaginal lacerations and others⁽¹⁻³⁾. On the other hand^(4,5), the opinion of other authors is that pregnancy in the adolescent is not characterised by any increase in obstetric disorders, but it could even be advantageous from a biological point of view⁽⁶⁾.

We have therefore undertaken a retrospective analysis of all teen-age pregnancies referred to our institution in the last ten years, focussing on the incidence of obstetric disorders and of abnormalities of labor.

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SUBJECTS AND METHODS

We have retrospectively analysed pregnancy outcome and mode of delivery of 304 patients aged between 14 and 19 years, admitted in the decade from 1984 to 1993. All patients were white and unselected for socio-economic status.

As control group a comparable number of pregnant patients aged 24 years, admitted in the same 10 year period, and matched for obstetric history and race were chosen.

We determined the incidence of spontaneous and induced abortion, of preterm delivery, of pregnancy-induced hypertension and of operative deliveries. In addition, we analysed the incidence of small for gestational age (SGA) newborns. We defined small for gestational age fetuses as the lower limit at the 10th centile of the range of birthweight for a given gestational age (⁷).

Statistics

A z-test comparison test was performed, with Yates correction on course. The t-test analysis was performed when comparing two groups, testing for normal distribution previously. A $P < 0.05$ was considered as statistically significant parameter.

RESULTS

In the period between 1984 and 1993 there was a total of 28,285 admissions for pregnant patients, of which 304 (1.07%) were adolescent (Table I). Table II shows the pregnancy outcome in the study groups. In the 304 adolescent pregnancies, 229 (73.32%) reached term. Forty six (15.1%) pregnancies ended in spontaneous abortion before the 26th week of gestational age, 22 (7.2%) were interrupted between 19 and 23 wks. for fetal chromosomal disorders. In 7 cases (2.3%) an intrauterine fetal death occurred and 29 patients (9.5%) delivered preterm; finally 10 cases (5.2%), admitted for threatened preterm labour, were treated with beta-mimetics and discharged.

Table 3 shows pregnancy complications in the adolescent and control groups. In the adolescent group we found a higher incidence of caesarean sections ($P < 0.001$), spontaneous abortion ($P = 0.04$); acute fetal distress in labor was signifi-

Table 1. - Total and adolescent group pregnancies in our department (1984-1993).

Years	Pregnancies	Adolescents	%
1984	2653	59	2.22%
1985	2791	36	1.28%
1986	3580	34	0.94%
1987	2811	28	0.99%
1988	2631	24	0.91%
1989	3312	21	0.63%
1990	2566	27	1.05%
1991	2887	34	1.17%
1992	2423	24	0.99%
1993	2630	17	0.64%
Total	28285	304	1.07%

cantly higher ($P = 0.04$); on the other hand, no statistical difference was found in the incidence of fetal malformations ($P = 0.38$) and intrauterine death ($P = 0.33$). However, no difference was found in the incidence of PIH ($P = 0.37$), oligohydramnios ($P = 0.63$) and other conditions defined under "others" ($P = 0.053$).

Birth weight (Table 4) was significantly lower in the 14-19 yrs group when compared with control group (3001 ± 356 , $P < 0.001$). We also evaluated the incidence of infants small of gestational age (SGA), which was 5/229 in the adolescent group and 1/258 in controls.

This finding was, however, non-significant although a trend was observable ($P = 0.184$).

DISCUSSION

In the present work we have analysed the incidence of pregnancy complications and the immediate outcome of pregnancy in a group of adolescents (14-19 yrs.) comparing them with a comparable group of pregnant controls (20-24 yrs.). The aim was to look for age-related differences in the incidence of pregnancy disorders and mode of delivery, as suggested by some (¹⁻³) and not confirmed by others (^{4, 5}).

Table 2. – Adolescent and control group total pregnancies outcome.

Variable	14-19 yrs		20-24 yrs		P
Vaginal delivery	193	63.5%	230	75.6%	NS
Cesarean section	36	11.9%	28	9.2%	<0.001
Spontaneous abortion	46	15.1%	29	9.5%	=0.003
Voluntary pregnancy	22	7.2%	16	5.3%	NS
Interruption (fetal disorders)					
Intrauterine death	7	2.3%	1	0.4%	NS

(*) NS: Non significant.

Table 3. – Pregnancy pathologies for adolescent and control groups.

Variable	14-19		24-24		P
		%		%	
Preterm delivery	29	9.5	18	5.9	NS
PIH	4	1.3	1	0.3	NS
Fetal distress	8	2.6	1	0.3	=0.04
IUGR	10	3.2	2	0.6	NS
Oligohydramnios	2	0.6	3	0.9	NS
Diabetes	3	0.9	1	0.3	NS
Rh immunization	2	0.6	0	0	NS
Other disorders *	12	3.9	16	5.2	NS

(*) Other pathologies including:

Premature rupture of membranes, ectopic pregnancy, maternal infectious disorders, polyhydramnios, placenta previa, etc.

(**) NS: Non significant.

We did not find, as others, an increased incidence in the adolescent group of complications attributable to the so called underdeveloped uterus, such as preterm deliveries, preterm rupture of the membranes, malpresentations or perineal tears. Nonetheless, a significant increase of intrauterine growth retardation and acute fetal distress in labor was found; this was reflected in the higher incidence of cesarean section in the study group.

The uterus of the adolescent is characterised by a phenomenon of relative hypoarterialisation⁽⁸⁾. Although this can guarantee the development of a pregnancy, it may not ensure an adequate supply of oxygen to the fetus during labour.

The same could explain the increased incidence of IUGR in the group of adolescent and the lower birth weight, although no difference was found in the incidence of SGA by gestational age.

From the present findings we hypothesise that in the adolescent beyond the physiological uterine hypoplasia resulting from an incomplete anatomical development, the relative “hypoarterialisation” is the phenomenon that may explain the increased incidence of certain pregnancy complications seen in adolescent pregnancies.

The age of adolescence is still a challenge for the obstetrician, and the need exists to increase our efforts for a better understanding of pregnancy in this age

Table 4. – Term birth weight in the 14-19 years group.

Age	Counts	Birth weight (average in g.)
14-15	4	2470
15-16	11	2930
16-17	32	3150
17-18	40	3120
18-19	63	3180
19-20	79	3170
14-19 total	229	3001*
20-24 total	258	3408

(*) $P < 0.001$ when compared with control group.

group. We should therefore consider pregnancies in adolescents as "high risk pregnancies" and implement all diagnostic and therapeutic means for this sub-group of pregnant.

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