Pregnancy Outcomes in Adolescents ≤ 15 Years Old

Keng Suebnukarn MD*,
Vorapong Phupong MD*

** Department of Obstetrics and Gynecology, Faculty of Medicine, Chulalongkorn University*

Objective: *The authors' purpose was to assess the occurrence of specific complications of adolescent ≤ 15 years old in a tertiary hospital population.*
Material and Method: *A retrospective study was conducted in a population of adolescents (age ≤ 15 years) delivered at the Department of Obstetrics and Gynecology, Faculty of Medicine, Chulalongkorn University from January 1,1994 to December 31, 2004. Subgroup analysis was also conducted according to the total number of antenatal visits. Group 1 had total antenatal visits less than four times during their gestation; group 2 had total antenatal visits at least four times during their gestation.*
Results: *During an 11-year study period, a total of 340 adolescent pregnancies aged ≤ 15 years old, were delivered. The patients' mean age was 14.5 years, and their mean gestational age was 37.5 weeks. Most cases (95.6%) were nulliparous. 12.3% of the cases had no antenatal care. The newborns' mean birth weight was 2819.2 g. Cesarean section rate was 12.1%. The most frequent obstetric complications were: anemia (22.6%), preterm delivery (16.5%), preeclampsia (7.4%), and small for gestational age infants (4.4%). Preterm delivery was the only obstetric complication that was significantly different between the two groups (22.1% in group 1 versus 12.0% in group 2, $p < 0.05$)*
Conclusion: *Pregnancy in adolescents ≤ 15 years poses many obstetric complications. These complications are reduced when they have a total antenatal care visit at least four times during their gestations. This information can be used to counsel adolescents who are pregnant to be concerned about their antenatal care.*

Keywords: *Pregnancy, Outcome, Young adolescent, Complications*

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Adolescent pregnancies are common public health problems, either in developed (e.g., United States) or developing countries (e.g., Thailand). This group of women is regarded as having high risk due to the effect of early motherhood on their physical and mental health, economic independence, education and social relationships. The adolescent pregnancy rate in the United States was 41.7 births per 1000 women in the year 2003[1]. Most of the teen pregnancies in the United States are unintended. In Thailand, the incidence of adolescent pregnancy was 104.4, 117.6, 108, and 107 births per 1,000 women in the year 2000, 2001, 2002, and 2003, respectively[2].

Correspondence to : Phupong V, Department of Obstetrics and Gynecology, Faculty of Medicine, Chulalongkorn University, Rama IV Rd, Pathumwan, Bangkok 10330, Thailand. Phone: 0-2256-4241, Fax: 0-2254-9292, E-mail: vorapong.p@chula.ac.th

Studies on the outcome of pregnancies in adolescents have yielded conflicting results[3-9]. Some studies have reported an increased risk of multiple pregnancy related complications, such as preterm labor, preterm premature rupture of membranes, pregnancy induced hypertension, anemia, gestational diabetes, cesarean delivery and small for gestational age infants[3-6], although other studies have failed to find an association between adolescence and pregnancy related complications[7-9].

The aim of the present survey was to assess the occurrence of specific complications of adolescents ≤ 15 years old in a tertiary hospital population.

Material and Method

The present study was approved by the Ethics Committee of Faculty of Medicine, Chulalongkorn University. The present study was conducted at the

Department of Obstetrics and Gynecology, Faculty of Medicine, Chulalongkorn University. This hospital is a tertiary and teaching hospital.

The authors reviewed the records of adolescents aged ≤ 15 years at the Department of Obstetrics and Gynecology, Faculty of Medicine, Chulalongkorn University from January 1, 1994 to December 31, 2004. Subjects for this retrospective study were identified from the obstetric database at delivery. The following variables were extracted from the medical records: maternal age, gestational age at delivery, parity, total weight gain, hematocrit, route of delivery, pregnancy complications, and neonatal outcomes and complications. Pregnancy complications include anemia, preterm labor, premature rupture of membranes (PROM), cephalopelvic disproportion (CPD), preeclampsia, postpartum hemorrhage (PPH), intrauterine growth restriction (IUGR), fetal distress, and thick meconium stained amniotic fluid. Neonatal complications include small for gestational age (SGA) infant, fetal death in utero (FDU), and stillbirth. The authors also divided the adolescents into two groups according to their total number of antenatal visits. Group 1 had a total of antenatal visits less than four times during their gestation and group 2 had a total of antenatal visits at least four times during their gestations.

Statistical analysis was assisted by computer software (SPSS version 12.0 for Windows, SPSS Inc, Chicago, USA). The data were summarized by applying descriptive statistics and expressed in terms of mean, standard deviation, and percent. Chi square or Fisher's exact tests was used for comparison of proportion, and student t- tests for comparison of means. $p < 0.05$ was considered statistically significant.

Results

During the 11-year study period, a total of 340 adolescent pregnancies aged ≤ 15 years old, were delivered. The total pregnant adolescents, and total pregnant delivered at the authors' institute were 12,272, and 125,412 cases, respectively at that time. The incidence of adolescent pregnancy aged ≤ 15 years old, and total adolescent pregnancy in this study period was 0.27%, and 10%, respectively. Thus, adolescent pregnancies age ≤ 15 years old were 2.77% of the total adolescent pregnancies. The average age of cases in the present study was 14.5 years. Most cases (95.6%) were nulliparous. 12.3% of the cases had no antenatal care. Maternal and obstetric characteristics are shown in Table 1. Cesarean section rate was 12.1%, while operative vaginal delivery (forceps and vacuum extraction) was 15.6%. Obstetric complications are shown in Table 2. The most common complication was anemia, which was found in 22.6% of cases. Preterm labor and preeclampsia were found in 16.5% and 7.4% of the cases, respectively.

Neonatal outcomes and complications are shown in Table 3. The average birth weight was 2819.2 g. The most common neonatal complication was small for gestational age, which was found in 4.4% of the cases.

Comparing between group 1 and 2, the average ages, percent of nulliparous cases, hematocrit and cesarean section rates were not statistically significant different between the groups ($p > 0.05$). Gestational age at delivery and total weight gain was significantly less in group 1 ($p < 0.05$), whereas group 1 had significantly more cases of normal delivery than group 2 ($p < 0.05$) (Table 1). Preterm delivery was the only obstetric com-

Table 1. Maternal and obstetric characteristic

	Total (n = 340)	Group 1 (n = 149)	Group 2 (n = 191)	p value
Age (years)	14.5±0.7	14.5±0.7	14.5±0.7	NS
Gestational age (weeks)	37.5±2.6	36.6±3.0	38.2±2.0	<0.05
Nulliparous	95.6%	96.0%	95.3%	NS
Multiparous	4.4%	4.0%	4.7%	NS
Total weight gain (kgs)	11.8±5.8	10.3±5.2	12.5±5.9	<0.05
Hematocrit (%)	34.5±3.9	34.5±3.7	34.5±4.1	NS
Route of delivery				
Normal labor	72.3%	77.9%	67.5%	<0.05
Cesarean section	12.1%	10.1%	13.6%	NS
Forceps	11.5%	9.3%	13.1%	<0.05
Vacuum	4.1%	2.7%	5.2%	<0.05

Data present as mean ± SD and percentage
NS: No statistical significant

Table 2. Obstetric complications

	Total (n = 340)	Group 1 (n = 149)	Group 2 (n = 191)	p value
Anemia (%)	77 (22.6)	33 (22.1)	44 (23.0)	NS
Preterm labor	56 (16.5)	33 (22.1)	23 (12.0)	<0.05
PROM	13 (3.8)	7 (4.7)	6 (2.6)	NS
CPD	17 (5)	5 (3.4)	12 (6.3)	NS
Preeclampsia	25 (7.4)	11 (7.4)	14 (7.3)	NS
PPH	6 (1.8)	2 (1.3)	4 (2.1)	NS
IUGR	15 (4.4)	10 (6.7)	5 (2.6)	NS
Fetal distress	8 (2.4)	4 (2.7)	4 (2.1)	NS
Thick meconium stained amniotic fluid	7 (2.1)	3 (2.0)	4 (2.1)	NS

Data present as n (percentage)
NS: No statistical significant

Table 3. Neonatal outcomes and complications

	Total (n = 340)	Group 1 (n = 149)	Group 2 (n = 191)	p value
Birth weight (grams)	2819.2±532.2	2692.3±579.2	2918.7±470.4	<0.05
Total neonatal stay (days)	4.4±6.9	5.5±9.8	3.5±3.1	<0.05
Apgar < 7 at 1 min	12 (3.5)	8 (5.4)	4 (2.1)	NS
Apgar < 7 at 5 min	2 (0.6)	0	2 (1.3)	NS
SGA	15 (4.4)	10 (6.7)	5 (2.6)	NS
FDU	2 (0.6)	1 (0.7)	1 (0.5)	NS
Still birth	2 (0.6)	2 (1.3)	0	NS

Data present as mean ± SD and n (percentage)
NS: No statistical significant

plication that was significantly different between the two groups (22.1% in group 1 versus 12.0% in group 2, $p < 0.05$) (Table 2). Neonatal birth weight was significantly less in group 1 than group 2, while total neonatal stay days was significant higher in group 1 than group 2 (Table 3). There was no statistically significant difference between groups in regard to small for gestational age infants.

Discussion

From the present study, pregnancies in adolescents ≤ 15 years old, poses important obstetric problems such as anemia, preterm labor, preeclampsia and small for gestational age infants. Some obstetric outcome was increased in adolescents ≤ 15 years old who had a total of antenatal care visits less than four times.

Ninety-five point six percent of the presented patients were nulliparous. Demir et al's study reported nulliparous in 87% of their patients[10]. Seventy-two point three percent of the presented patients had normal vaginal delivery, and 12.1% were delivered by cesarean section. This cesarean section rate was comparable to 13.8-15.3% from other studies[4,7]. This rate may seem high when compared with 6% in another report[9]. However, at Chulalongkorn Hospital, which is a tertiary referral university hospital, the delivery rate by cesarean section was 20.2-30.9%[11], since most of our patients were high-risk pregnancies.

Anemia was the most common obstetric complication found in the present study. The rate was 22.6%. This rate is similar to that of Berenson et al (22%)[9]. The increased risk of this complication most likely resulted from poor nutritional habits since pregnant adolescents tend to have more erratic eating patterns and a caloric intake well below the recommended dietary allowance for pregnancy[9,12].

Young adolescents also show an increased risk for preterm labor[4,13]. The incidence of preterm delivery was 16.5% in the present study. This result is similar to other studies[4,9], but higher when compared with the rate in our institute (3.1-9.5%)[11].

Another complication that was high in adolescent pregnancy was preeclampsia. The incidence in

this present study was 7.4%. This rate is also comparable to other studies (8.3-9%)[4,9]. However, cephalopelvic disproportion in the present study is not high (5%). This may be explained by the higher number of cases of preterm delivery in the present study.

Small for gestational age infant is an important neonatal complication in adolescent pregnancies, as reported by many authors. The incidence was 4.4% in the present study, which is similar to that of Berenson et al[9].

The present study also shows that preterm delivery and total newborn stay day were fewer, whereas, the gestational age and neonatal birth weight were higher when the pregnant girls had antenatal care visits at least four times during their gestations. This confirmed the importance of adequate antenatal care[14]. Total normal delivery cases were significantly higher in pregnant adolescents who had total antenatal care visits less than four times during their gestations. This may be explained by the lower birth weight at delivery of this group.

In conclusion, pregnancy in adolescents $\leq$ 15 years poses many obstetric complications. These complications are reduced when they have total antenatal care visits at least four times during their gestations. This information can be used in the counseling of adolescents who are pregnant to be concerned abuot their antenatal care.

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ผลลัพธ์ของการตั้งครรภ์ในหญิงวัยรุ่นอายุน้อยกว่าหรือเท่ากับ 15 ปี

เก่ง สืบนุการณ์, วรพงศ์ ภู่พงศ์

***วัตถุประสงค์**: เพื่อศึกษาถึงภาวะแทรกซ้อนที่เกิดขึ้นในหญิงตั้งครรภ์วัยรุ่นอายุน้อยในโรงพยาบาลระดับตติยภูมิ*

***วัสดุและวิธีการ**: การศึกษาข้อมูลย้อนหลังของหญิงวัยรุ่นอายุน้อยกว่าหรือเท่ากับ 15 ปีที่มาคลอดที่ภาควิชาสูติศาสตร์-นรีเวชวิทยา, คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัยระหว่างวันที่ 1 มกราคม พ.ศ. 2537 ถึงวันที่ 31 ธันวาคม พ.ศ. 2547 และได้ทำการแบ่งกลุ่มศึกษาตามจำนวนครั้งที่ฝากครรภ์ โดยที่กลุ่มที่ 1 ฝากครรภ์น้อยกว่า 4 ครั้งตลอดการตั้งครรภ์ ส่วนกลุ่มที่ 2 ฝากครรภ์อย่างน้อย 4 ครั้งตลอดการตั้งครรภ์*

***ผลการศึกษา**: ในช่วงระยะเวลา 11 ปีที่รวบรวมข้อมูล พบว่ามีจำนวนหญิงวัยรุ่นอายุน้อยกว่าหรือเท่ากับ 15 ปีมาคลอดทั้งหมด 340 คน โดยมีอายุเฉลี่ย 14.5 ปี และอายุครรภ์เฉลี่ยที่คลอดบุตร 37.5 สัปดาห์ ส่วนใหญ่ (ร้อยละ 95.6) ของหญิงวัยรุ่นอายุน้อยกว่าหรือเท่ากับ 15 ปีไม่เคยมีบุตรมาก่อน ร้อยละ 12.3 ไม่ได้ฝากครรภ์ น้ำหนักเฉลี่ยของทารกแรกคลอดเท่ากับ 2,819.2 กรัม อัตราการผ่าตัดคลอดบุตรทางหน้าท้องเท่ากับร้อยละ 12.1 ภาวะแทรกซ้อนทางสูติศาสตร์ที่พบบ่อยได้แก่ ภาวะโลหิตจาง (ร้อยละ 22.6) ภาวะการเจ็บครรภ์คลอดก่อนกำหนด (ร้อยละ 16.5) ภาวะครรภ์เป็นพิษ (ร้อยละ 7.4) และภาวะทารกมีน้ำหนักตัวน้อย (ร้อยละ 4.4) ภาวะการเจ็บครรภ์คลอดก่อนกำหนดเป็นภาวะแทรกซ้อนทางสูติศาสตร์เดียวที่มีความแตกต่างอย่างมีนัยสำคัญทางสถิติระหว่าง 2 กลุ่มศึกษา (ร้อยละ 22.1 ในกลุ่มที่ 1 เปรียบเทียบกับร้อยละ 12.0 ในกลุ่มที่ 2, $p < 0.05$)*

***สรุป**: การตั้งครรภ์ในหญิงวัยรุ่นอายุน้อยกว่าหรือเท่ากับ 15 ปีมักมีภาวะแทรกซ้อนทางสูติศาสตร์ตามมา ภาวะแทรกซ้อนดังกล่าวลดลงถ้ามีการดูแลฝากครรภ์อย่างน้อย 4 ครั้งในช่วงที่ตั้งครรภ์ ข้อมูลที่ได้นี้สามารถนำไปให้คำปรึกษาหญิงวัยรุ่นที่ตั้งครรภ์เพื่อที่จะรับการดูแลฝากครรภ์*