

Obstetric Outcome in Adolescents-(A Single Centre Experience Over 10 Years from Jan 2006-Dec 2015)

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Submitted: 22 Feb 2021; Accepted: 09 March 2021; Published: 29 April 2021

Citation: Ahlam Ali Saif Al Hinai, Abdulrahman Al Farsi, Safa Khalfan Said Al Kitani and Rajaa Mohammed Salim Al Hadrami (2021) Obstetric Outcome in Adolescents-(A Single Centre Experience Over 10 Years from Jan 2006-Dec 2015). *J Gynecol Reprod Med*, 5(1): 08-11.

Abstract

The aim of this study is to determine whether young adolescents aged 11-19 years have an increased risk of cesarean or operative delivery, as well as maternal or neonatal delivery-related morbidity, compared to young adults aged 20-24 years in the tertiary hospital Royal Hospital in period from January 2006 to December 2015. It is a retrospective cohort study and we include all women delivered in royal hospital in that period of time and aged from 14 to 25 years and gestational age more than 24 week's singleton pregnancy and cephalic presentation during labour. We exclude maternal Age > 25 years and Gestation age \leq 24 weeks, Non-cephalic presentation and Multiple pregnancy. By this study, there is no significant outcome complication among adolescent age group pregnancy compare to adult group except IUGR and NICU admissions.

Introduction

Multiple studies demonstrate that childbearing is associated with greater health consequences for teens than for adult women. The occurrence of preterm delivery, low birthweight, hypertension, preeclampsia and eclampsia, anemia, and neonatal death are all higher among teens compared to 20 to 29 years old, with increased risk of low birthweight and preterm delivery in the youngest adolescent age groups. Although data regarding pregnancy among adolescents <15 years of age are limited, this population has been shown to be less likely to have adequate prenatal care and more likely to have increased risks of intrauterine growth restriction, preterm delivery, stillbirth, and infant death.

It has been hypothesized that adolescents <15 years of age may have an increased risk of cesarean and operative vaginal delivery compared to adult women, possibly due to cephalopelvic disproportion resulting from underdeveloped bone structures. Multiple large database studies have demonstrated a decreased risk of cesarean delivery among teens; however, many of these studies have used samples composed primarily of adolescents age \geq 16 years, with fewer young adolescents represented. One study among young adolescents <15 years-old, specifically, found an increased

risk of caesarean, although the effect was limited to those with normal-weight or macrocosmic infants. Two studies suggest an increased risk of birth trauma in the youngest adolescents, with higher risk of emergency caesarean delivery, perineal trauma, and forceps-assisted delivery compared to older teens with infants at comparable birthweight and gestational age.

Other study showed that in adolescent pregnancies the caesarean section rate was lower than in adult pregnancies. As far as the prevalent cause of caesarean section is concerned, it was repeat caesarean section for adults while in adolescents it was failure of labour to progress [1].

Other study of Adverse Maternal and Neonatal Outcomes in Adolescent Pregnancy. To investigate the outcomes of adolescent pregnancy. It was Retrospective cohort study from the Consortium on Safe Labor between 2002 and 2008 in Twelve clinical centers with 19 hospitals in the United States. Include total of 43,537 younger than 25 years of age, including 1189 younger adolescents (age \leq 15.9 years), 14,703 older adolescents (age 16-19.9 years), and 27,645 young adults (age 20-24.9 years). They Adjusted odds ratio (or) with 95% confidence interval (CI) were calculated, controlling

for maternal characteristics and pregnancy complications (young adults as a reference group). It concludes that Adolescents were less likely to have a cesarean delivery. Failure to progress or cephalopelvic disproportion occurred less frequently in older adolescents. Adolescents who entered spontaneous labor had a shorter second stage of labor [2].

So the aim of this study is to determine whether young adolescents aged 11-19 years have an increased risk of cesarean or operative delivery, as well as maternal or neonatal delivery-related morbidity, compared to young adults aged 20-24 years in the tertiary hospital Royal Hospital in period from January 2006 to December 2015.

Objectives

The primary objective is adolescent pregnancy significantly associated with poor maternal & fetal outcome as compared to adult pregnancies? And the secondary objective: What are the determinants of poor maternal and fetal outcome in adolescent pregnancies?

Methods

After ethical approved from Royal hospital, we conduct this study of Obstetric outcome in adolescents in a single Centre experience (Royal hospital) over 10 years from January 2006 to December 2015.

It is a retrospective cohort study and we include all women delivered in royal hospital in that period of time and aged from 14 to 25 years and gestational age more than 24 week's singleton pregnancy and cephalic presentation during labour. We exclude maternal Age > 25 years and Gestation age \leq 24 weeks, Non-cephalic presentation and Multiple pregnancy. Patient consent not involved as patient name and ID not appear in the study

There were total of 7000 pregnancies in that period. We exclude 4000 pregnancies which were not fit in inclusion criteria. Out of remaining 3000, there were only 180 cases of adolescent age pregnancies which fit in our criteria. So Our Sample size is 540 women including 360 women of adult age and 180 women of adolescent age with ratio 2:1 of adult to adolescent

Statistical Analysis

All data were collected using SPSS. Qualitative data were expressed as frequency and percentage. Chi-square test was used for the analysis. P value < 0.05 was considered as statistically significant.

Results and Discussion

Our Sample size is 540 women including 360 women of adult age and 180 women of adolescent age with ratio 2:1 of adult to adolescent.

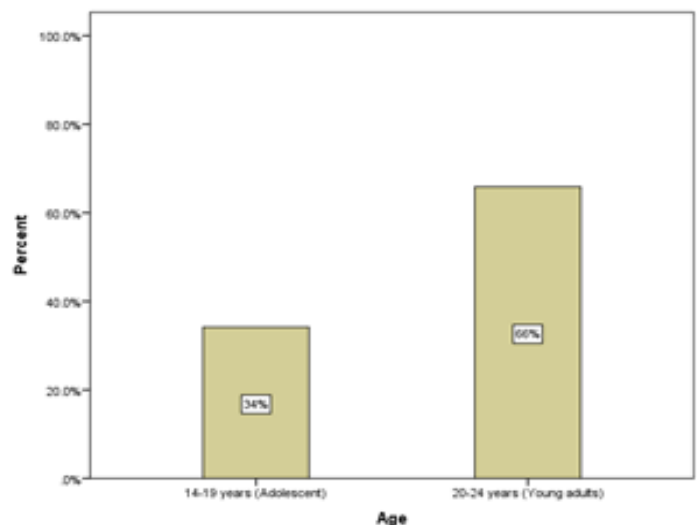
Out of 540 cases, there were 25 cases (13.5%) of anemia in adolescent age group compare to 44 (12.3%) in adult group with P value of 0.686. There were 20 cases (10.8%) of infection in adolescent age group compare to 41 (11.5%) in adult group with P value of 0.887. There were 6 cases (3.2%) of GDM in adolescent age group compare to 19 (5.3%) in adult group with P value of 0.388. There

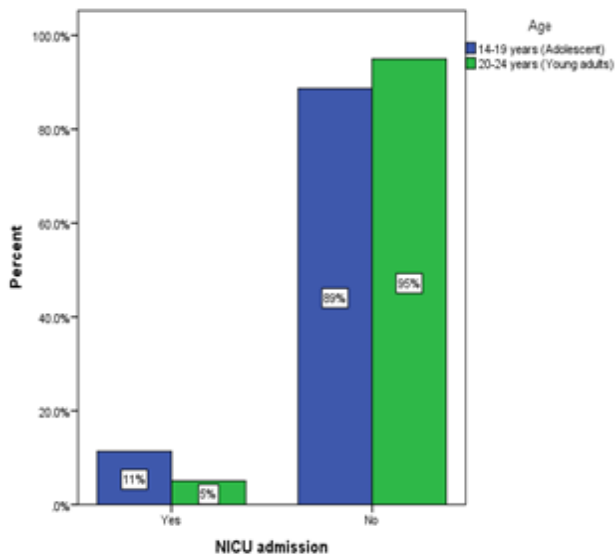
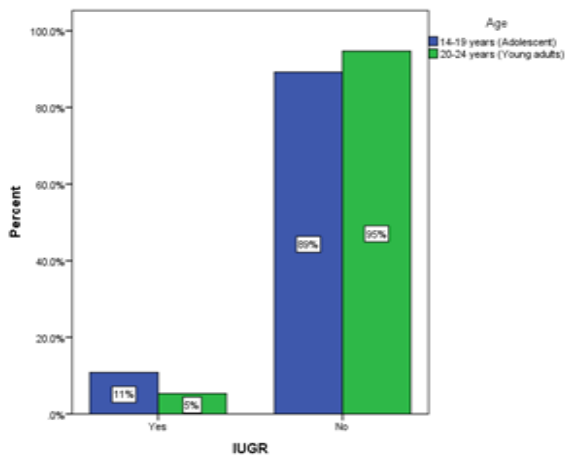
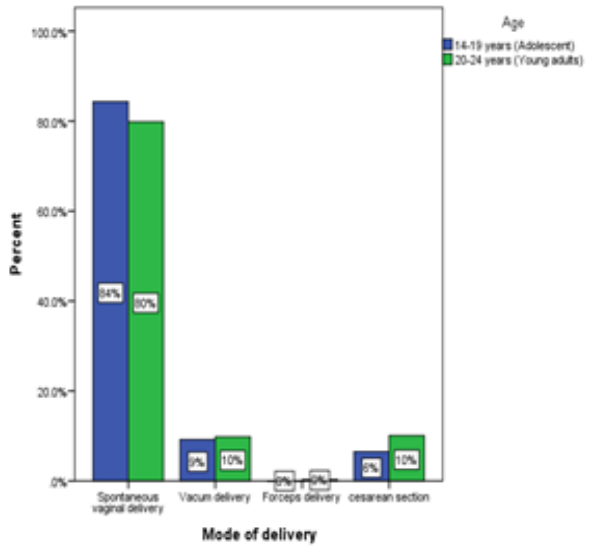
were 5 cases (2.7%) of pre-eclampsia in adolescent age group compare to 10 (2.8%) in adult group with P value of 1.000. There were 4 cases (2.2%) of eclampsia in adolescent age group compare to 3 (0.8%) in adult group with P value of 0.237. There were 24 cases (13.0%) of pre-term labor in adolescent age group compare to 33 (9.2%) in adult group with P value of 0.186.

There were 6 cases (3.2%) of Congenital anomalies in adolescent age group compare to 14 (3.9%) in adult group with P value of 0.813. There were 20 cases (10.8%) of IUGR in adolescent age group compare to 19 (5.3%) in adult group with P value of 0.023. There were 2 cases (1.1%) of IUFD in adolescent age group compare to 2 (0.6%) in adult group with P value of 0.609. The mean \pm Sd of gestational age at the time of delivery in adolescent age group was 38.15 \pm 3.37 compare to 38.67 \pm 2.24 in adult group with P value of 0.058. There were 156 case (84.3%) of spontaneous vaginal delivery in adolescent age group compare to 285 (79.8%) in adult group, there were 17 case (9.2%) of vacuum delivery in adolescent age group compare to 35 (9.8%) in adult group, there were 0 case (0.0%) of forceps delivery in adolescent age group compare to 1 (0.3%) in adult group, there were 12 case (6.5%) of cesarean section in adolescent age group compare to 36 (10.1%) in adult group with P value of 0.449.

There were 5 cases (2.7%) of perineal trauma in adolescent age group compare to 10 (2.8%) in adult group with P value of 1.000. There were 8 cases (4.3%) of PPH in adolescent age group compare to 9 (2.5%) in adult group with P value of 0.300. There were 20 cases (10.8%) of low birth weight in adolescent age group compare to 31 (8.7%) in adult group with P value of 0.440. There were 21 cases (11.4%) of NICU admission in adolescent age group compare to 18 (5.0%) in adult group with P value of 0.009. There were 1 cases (0.5%) of still birth in adolescent age group compare to 6 (1.7%) in adult group with P value of 0.432.

From the above date: Statistically significant complication in adolescent age group are Intra Uterine Growth Restriction (IUGR) with P value 0.023 and Neonatal Intensive Care Unit (NICU) admission with P value 0.009. as we can show in following graphs:





		Age Group		
		14-19 years n(%)	20-24 Years n(%)	p value
Anemia	Yes	25 (13.5)	44 (12.3)	0.686
	No	160(86.5)	313 (87.7)	
Infection	Yes	20 (10.8)	41 (11.5)	0.887
	No	165(89.2)	316 (88.5)	
GDM	Yes	6 (3.2)	19 (5.3)	0.388
	No	197(96.8)	338 (94.7)	
Pre-ec-lampsia	Yes	5 (2.7)	10 (2.8)	1.000
	No	180(97.3)	347 (97.2)	
Eclampsia	Yes	4 (2.2)	3 (0.8)	0.237
	No	181(97.87)	354 (99.2)	
Pre-term labor	Yes	24 (13.0)	33 (9.2)	0.186
	No	161 (87.0)	324 (90.8)	
Congenital anomalies	Yes	6 (3.2)	14 (3.9)	0.813
	No	179 (96.8)	343 (96.1)	
IUGR	Yes	20 (10.8)	19 (5.3)	0.023*
	No	165 (89.2)	338 (94.7)	
IUFD	Yes	2 (1.1)	2 (0.6)	0.609
	No	183 (98.9)	355 (99.4)	

		Age Group		
		14-19 years n(%)	20-24 Years n(%)	p value
Gestational age at the time of delivery	Mean±Sd	38.15±3.37	38.67±2.24	0.058
Mode of delivery	-Spontaneous vaginal delivery	156 (84.3)	285 (79.8)	0.449
	-Vacuum delivery	17 (9.2)	35 (9.8)	
	-Forceps delivery	0 (0)	1 (0.3)	
	-Cesarean section	12 (6.5)	36 (10.1)	
Perineal trauma	Yes	5 (2.7)	10 (2.8)	1.000
	No	180 (97.3)	347 (97.2)	
PPH	Yes	8 (4.3)	9 (2.5)	0.300
	No	177 (95.7)	348 (97.5)	
Low Birth Weight	Yes	20 (10.8)	31 (8.7)	0.440
	No	165 (89.2)	326 (91.3)	
NICU admission	Yes	21 (11.4)	18 (5.0)	0.009*
	No	164 (88.6)	339 (95.0)	
Still birth	Yes	1 (0.5)	6 (1.7)	0.432
	No	184 (99.5)	351 (98.3)	

Table 1. Comparison of Adolescent pregnant women with young adult pregnant women

Test: Chi-square test/Independent samples t-test

*Statistically significant

Limitation

This study involves only small sample size and done in Single center. If the study done in multicenter and involve larger sample size, the result could be more significant. Also other excluded criteria like abortion, other fetal and maternal complication can be included or involved in separate study.

Conclusion

There is no significant outcome complication among adolescent age group pregnancy compare to adult group except IUGR and NICU admissions Adolescent pregnancies and deliveries are almost safe. The only significant complication we found was IUGR and NICU admission [3-23].

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