



ORIGINAL ARTICLE

Association of adolescence pregnancy and adverse pregnancy outcome.

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ABSTRACT... Objective: To determine the association of adolescence pregnancy and adverse pregnancy outcome. **Study Design:** Prospective Cohort study. **Setting:** Department of Gynae and Obs, HBS General Hospital Islamabad. **Period:** June-2018 to April-2019. **Material & Methods:** A total of 226 pregnant females with singleton pregnancy of 20-24 weeks gestational age and 16 to 30 years of age were included in the study. Patients with known diabetics, h/o chronic hypertension, known smoker and any renal disease etc. were excluded. Women included were divided into two groups. All women between 16-20 years of age were included in adolescence group (group A) and age >20-30 years in adult group (group B). All patients were followed till delivery and outcome variables like adverse pregnancy outcome in terms of preeclampsia and small for gestational age infants were noted. **Results:** The mean age of women in group A was 18.15 ± 0.79 years and in group B was 25.42 ± 2.08 years. The mean gestational age in group A was 21.54 ± 1.46 weeks and in group B was 21.98 ± 1.07 weeks. Frequency of small for gestational age infants in adolescence group was 7.96% while in adult group was 1.76% with p-value of 0.030 and relative risk of 4.5 which is significant. Frequency of pre-eclampsia in adolescence group was 21.24% while in adult group was 4.42% with p-value of 0.000 and relative risk of 4.8 which is significant. **Conclusion:** This study concluded that the frequency of pre-eclampsia and small for gestational age infants in adolescence pregnancy is higher compared to adult pregnancy which shows adolescence pregnancy as a risk factor for pre-eclampsia and small for gestational age infants.

Key words: Fetal Outcome, Maternal Outcome, Teenage Pregnancy.

INTRODUCTION

The term “adolescence” and teenage is mostly used side by side. The “adolescence pregnancy” is pregnancy in women who belong to age between 10–20 years. An adolescence pregnancy is one of the major health issues and can lead to multiple social and obstetrical issues. One out of five girls become pregnant when they are in a teenage group. Every year >14 million teenage girls give birth to a child, most of them belong to non-industrialized countries.^{1,2} There are many reasons behind adolescent girl becoming pregnant e.g. precocious sexual activity, economic disadvantage, poor performance at school, being the offspring of single parent and with previous history of adolescent pregnancy etc.³ Adolescent pregnancy has many side effects in mother as well as infant. In mother it is associated with eclampsia, pre-eclampsia preterm birth etc. and

in infants it has side effects like small for dates fetus, low birth weight, prematurity, and higher rates of neonatal and post-neonatal deaths. So it is concluded that adolescent pregnancy should be considered high risk pregnancy which need special care as far as mother and fetus are concerned.^{4,5} The reason behind this adverse outcomes is yet not clear. Whether it is social, demographic or biological immaturity that contributes to it is still controversial and unclear.³

Immature uterine or cervical blood supply in teenage pregnancy and the ongoing process of growth of teenage mother can lead to prostaglandin production and cause preterm delivery. Similarly, for the same reason the weight gain in teenage pregnant women is not much as required and expected.

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The small for dates baby in such pregnancies is also attributed to the competition between mother and her fetus for nutrients⁷. Literature review reveals the higher incidence of high blood pressure and small for gestational age births in adolescence pregnancy than in adult patients i.e. 16% vs 1.33% and 5.3% vs 0% respectively.⁶

The objective behind this study was to determine the risk of developing pre-eclampsia and small for gestational age infants in adolescence pregnancy compared with adult pregnancy in local population.

MATERIAL & METHODS

This prospective cohort study was carried out in gynae and obs department of HBS General Hospital Islamabad from June-2018 to April-2019 after approval of ethical committee (21/P/18). A total of 226 primigravida pregnant women between 16 to 30 years having singleton pregnancy were included. They were divided into two groups. Group-A had primigravida of 16-20 years of age with singleton pregnancy at 20-24 weeks of gestation assessed on LMP. Group-B had all primigravida of >20-30 years of age with singleton pregnancy at 20-24 weeks of gestation assessed on LMP. The patients with h/o chronic hypertension, family history of pre-eclampsia, preexisting diabetes (type 1 or type 2), especially with micro vascular disease, patients with SLE and thrombophilia, patients with h/o use of selective serotonin uptake inhibitor antidepressants (SSRIs), known smoker or alcoholic, patients with any renal disease were excluded.

After taking ethical approval informed consent was taken from the study participants and they were divided into two fore-mentioned groups and all cases were followed till delivery and outcome variables like adverse pregnancy outcome in term of preeclampsia (Systolic blood pressure ≥ 140 mmHg, diastolic blood pressure ≥ 90 mmHg (two separate readings taken at least six hours) and >500 mg of protein in 24 hour urine sample) and small for dates infants (birth weight of a neonate below the 10th percentile for gestational age) were noted by the researcher herself. Statistical analysis was performed using SPSS

version 22. Results were presented as mean and standard deviation for quantitative variables i.e. age, gestational age of mother. Frequency and percentage were calculated for qualitative variables like pre-eclampsia (yes/no) and small for gestational age infants (yes/no) in each group. The outcome variables i.e. pre-eclampsia & small for gestational age infants, of the two study groups were compared for difference by Chi Square test and p-value ≤ 0.05 was considered as significant. Relative risk was calculated to see the association between adolescence pregnancy and outcome variables, and RR >2 was considered as significant.

RESULTS

The range of age in this study was from 16 to 30 years with mean age of 21.80 ± 3.48 years. The mean age of women in group A was 18.15 ± 0.79 years and in group B was 25.42 ± 2.08 years. The mean gestational age in group A was 21.54 ± 1.46 weeks and in group B was 21.98 ± 1.07 weeks. Frequency of small for gestational age infants in Group A (adolescence group) was 09 (7.96%) while in Group B (adult group) was 02 (1.76%) as shown in Figure-1 which has shown p-value of 0.030 and relative risk of 4.5 which is significant and shows a positive association between adolescence pregnancy and small for gestational age infants. Frequency of pre-eclampsia in Group A (adolescence group) was 24 (21.24%) while in Group B (adult group) was 05 (4.42%) as shown in Figure-2 which has shown p-value of 0.000 and relative risk of 4.8 which is significant and shows a positive association between adolescence pregnancy and pre-eclampsia.

DISCUSSION

Adolescent pregnancy is common and important health issue both in both developing and developed countries and it is not a new phenomenon.⁸ The age of marriage in some parts of the world has traditionally been low like some parts of Asia, Middle East and some parts of Africa. In these cases mostly the girls got married soon after menarche and as a result of this many kids are born from adolescent mothers and this adds on to other social and personal problem.⁶⁻⁹

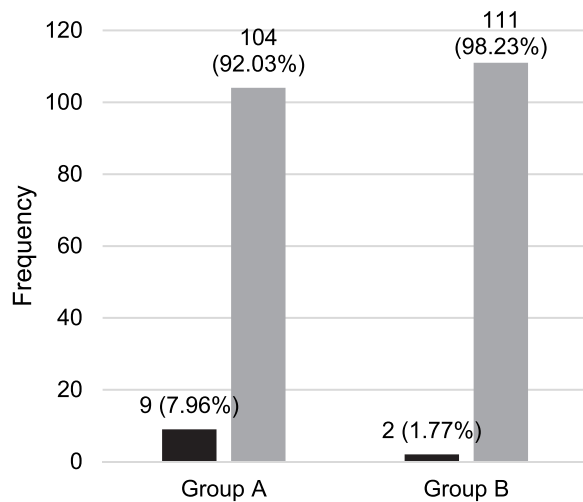


Figure-1. %age of small for gestational age infants in both groups.

P-value 0.030 which is statistically significant.

Relative risk is 4.5 which is significant.

There are many reasons behind the teenage pregnancy like social, educational, racial inequity and these reasons increase the risk of obstetrical complications onwards.¹⁰⁻¹³

Pregnancy in young females (< 20 years) is associated with higher rates of illness and death for both the mother and infant. Pregnant teens are at much higher risk of having serious medical complications such as: placenta previa, pregnancy-induced hypertension, premature delivery and toxemia.^{16,17} Infants born to teens are 2 - 6 times more likely to have low birth weight than those born to mothers age 20 or older.^{14,15}

The trend of early marriages more in developing countries than in developed countries the average age of marriage in Asian and African countries is between 16 – 19 years. Countries with earliest average age of marriage are Bangladesh, Niger, Yemen, India and Senegal.¹⁷

The data obtained from the present study revealed that frequency of low birth infants in Group A (adolescence group) was 09 (7.96%) while in Group B (adult group) was 02 (1.76%) with p-value of 0.030 and relative risk of 4.5 which is significant and showed a positive association between adolescence pregnancy and low birth infants. Also, frequency of pre-eclampsia in Group

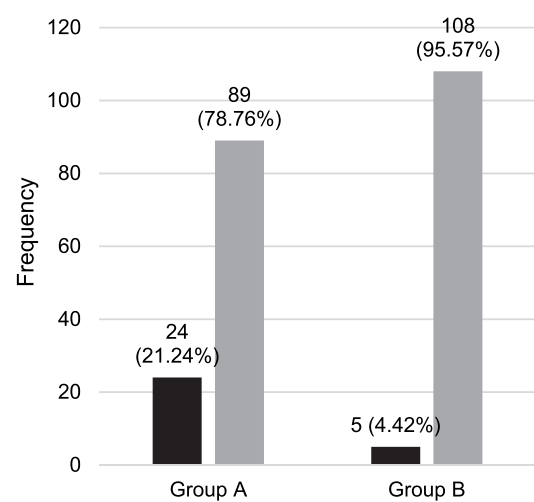


Figure-2. %age of patients according to Preeclampsia between both Groups.

P value is 0.000 which is statistically significant.

Relative risk is 4.8 which is significant.

A (adolescence group) was 24 (21.24%) while in Group B (adult group) was 05 (4.42%) with p-value of 0.000 and relative risk of 4.8 which is significant and showed a positive association between adolescence pregnancy and pre-eclampsia. Literature review reveals the higher incidence of increased blood pressure with proteinuria and small for date births in adolescence pregnancy than in adult patients i.e. 16% vs 1.33% and 5.3% vs 0% respectively.⁶

In a multiethnic American study, teenage Gravida also showed increased rates of complications in pregnancy. It is noticed that adolescent pregnancies have at least two to three times increased risk of experiencing pre-eclampsia and small for gestational age infants.¹⁶

Fleming N et al¹⁴ reveals that preeclampsia complicated 2.2% of the pregnancies in adolescence and 2.8% of the adult pregnancies. He has found frequency of small for gestational age infants in adolescence pregnancy as 4.4% and in adult pregnancy 1.9%.

Fraser et al¹⁵, in his study also found that their increased risk of small for date babies in young pregnant females (< 19 years) as compared to mothers of 20–24 years of age.

A majority of respondents in a 1988 Joint Center for Political and Economic Studies survey attributed the occurrence of adolescent pregnancy, a reason behind the lack of communication between parents and child and also to less parental supervision.¹⁵

CONCLUSION

This study concluded that the frequency of pre-eclampsia and small for gestational age infants in adolescence pregnancy is higher compared to adult pregnancy which shows adolescence pregnancy as a risk factor for pre-eclampsia and small for gestational age infants. So, we recommend that public awareness should be arranged on national and regional levels regarding this major public health issue and to avoid adolescent marriages and pregnancy as well as proper management of this high risk group for better future outcome in order to reduce adverse maternal and perinatal outcomes.

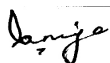
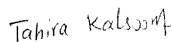

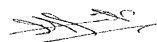

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AUTHORSHIP AND CONTRIBUTION DECLARATION

No.	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Saniya Naheed	Concept and design of the study, Final approval and guarantor of the article.	
2	Tahira Kalsoom	Collection and assembly of data, interpretation of the data.	 Tahira Kalsoom
3	Adeela Ameen	Critical revision of the article for important intellectual content.	
4	Iffat Irshad	Statistical expertise and English language proof reading.	
5	Sajida Asghar	Critical revision of the article for important intellectual content.	
6	Dureshahwar	Collection, assembly and interpretation of data.	