ORIGINAL ARTICLE

Maternal age and pregnancy outcome: Risks and benefits

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ABSTRACT

Objective: To determine the association of pregnancy outcome with various age groups of at tertiary care Hospital.

Method: This cross-sectional study was conducted at Department of obstetrics and Gynecology department of civil Hospital Hyderabad Pakistan, during six months from March 2017 to August 2017. All singleton pregnant women with age range of 15-40 years and willing to participate in the study were included. All the women were assessed regarding maternal outcome and perinatal outcome in terms of complications and mortality according to different age groups. All the data was recorded via study proforma. Data was analyzed by using SPSS version 20.

Results: Un-booked participants were 57%. Out of all, 44% females were primary gravida and 56% were multigravida. Hypertension was the most common maternal complication (37.7%) followed by pregnancy-related toxaemia (21.9%), anaemia (16.6%), placenta previa (13.2%), premature delivery (5.3%), and 4.6% of pregnant women had no complications. As per neonatal outcome 16.7% were still birth and early neonatal death was 14.0%. Maternal complications and fetal outcomes were significantly associated with age groups of 15-20 years and 31-40 years (p=0.001).

Conclusion: It was concluded that, there are many maternal and fetal complications that are frequently found in adolescent mothers and advanced age mothers.

Key words: Age, Pregnancy, Fetal health, maternal Health

INTRODUCTION

The age of the mother at conception has significantly been associated with maternal health and pregnancy outcomes.[1] Several studies have shown that as maternal age grows, so does the risk of fetal mortality, including spontaneous abortion. Multigravidity and prior spontaneous abortions are well-known risk factors of potential spontaneous abortions. Furthermore, several studies have linked pregnancy during adolescence to an elevated risk of poorer birth outcomes such as preterm birth, neonatal asphyxia, low birth weight, and perinatal death.[2] In several middle- and low-income countries around the world, pregnancy during adolescence and its effects are a significant public health issue.[3] In developed nations, early birth or adolescent pregnancy has often been associated with a lack of social welfare and maternal health. Because of a variety of cultural and social factors, childbearing age of a female has changed significantly in recent decades.[4] The WHO recently released evidence-based recommendations on six topics: minimizing early marriage; restricting early pregnancy via sexuality education, increased educational opportunities, and social and economic support programs; increasing the use of contraceptive; minimizing coerced sex; avoiding unsafe abortion; and enhancing the use of postpartum care and prenatal care.[5] In Pakistan, early marriage is a widespread traditional practice that overwhelmingly affects teenage girls from rural, low-education, and low-income families.[6] In order to demonstrate their fertility, these teenage girls are usually supposed to be pregnant immediately after marriage. Premature delivery, low birth weight (LBW), neonatal morbidities such as respiratory distress syndrome, jaundice, perinatal asphyxia, and as well as fetal mortality, were all more common in teenage mothers. However, it has been documented that advanced age of mother is linked to a number of negative perinatal and maternal outcomes.[7] In light of the above details and conflicting conclusions, this research was carried out to determine the benefits and risks of pregnancy in various age groups.

MATERIAL AND METHODS

This cross-sectional study was conducted at Department of obstetrics and Gynecology department of civil Hospital Hyderabad Pakistan, during six months from March 2017 to August 2017. Non-probability purposive sampling technique was used. All singleton pregnant women with age range of 15-40 years and willing to participate in the study were included. Females with twine pregnancy and medical disorders like diabetes, hypertension, and cardiac issues, autoimmune, endocrine or renal diseases were excluded from study. Total 150 women were incorporated and equally divided into three categories; Group I (15 to 20) , Group II (21 to 30) and Group III(31 to 40). Written informed consent was taken from all the women. All the women were assessed regarding maternal outcome in terms of hypertension, premature delivery, placenta previa, anemia, pregnancy related toxemia and fetal outcome in terms of alive, NICU admission, still birth and early neonatal death as per maternal age. All the demographic information including feto-maternal outcome was recorded via study proforma. Data was analyzed by using SPSS version 20. Categorical variables were computed in the form of frequency and percentage. Numerical variables were computed in the form of mean and standard

deviation. Post stratification chi-square test was applied and a p-value ≤0.05 was considered as significant.

RESULT

Out of overall 150 females in this study, 62 (41%) belonged to urban regions and 88 (59%) belonged to rural regions. Un-booked participants were 85(57%), while booked participants were 65 (43 %). In terms of parity, 66 (44%) females were found to be primary gravida, while 84 (56%) were found to be multigravida. Hypertension was the most common maternal complication (37.7%) followed by pregnancy-related toxaemia (21.9%), anaemia (16.6%), placenta previa (13.2%), premature delivery (5.3%), and 4.6% of pregnant women had no complications. According to the mode of delivery most of the women 66.0% underwent normal vaginal delivery, followed by emergency C-sections were done in 24.7% women and 9.3% females underwent elective c-section Table.1

Maternal complications and fetal outcomes were found statistically significant according to maternal age (p=0.001) as showed in table 2 and 3.

Table. 1. Demographic characteristics of the patients n=150

Variables		Frequency (%)
Age groups	15-20 years	50(33.3%)
	21-30 years	50(33.3%)
	31-40 years	50(33.3%)
Residence	Urban	62(41.0%)
	Rural	88(59.0%)
Booking status	Booked	65(43.0%)
	Un-booked	85.(57.0%)
Parity	Primiparous	66(44.0%)
	Multiparous	84(56.0%)
Mode of delivery	Normal vaginal delivery	99(66.0%)
	Elective c-section	14(09.3%)
	Emergency c-section	37(24.7%)
Maternal complication	No any	07(04.6%)
	Pregnancy induced hypertension	57(37.7%)
	Pregnancy related toxemia	33(21.9%)
	Anemia	25 (16.6%)
	Placenta previa	20(13.2%)
	Pre-mature delivery	08(05.3%)
Fetal outcome	Alive	104(69.3%)
	Still birth	25(16.7%)
	Early neonatal death	21(14.0%)

Table No:2. Maternal complication according to age groups n=150

Age groups	Maternal complications						p-value
	PIH	Placenta previa	Premature delivery	Anemia	Pregnancy related toxemia	No any	
15-20	21	8	3	9	7	2	0.001
21-30	19	5	2	7	13	4	
31-40	17	7	3	9	13	1	
Total	57	20	8	25	33	7	

Table No:3. Fetal according to age groups n=150

Age groups	Fetal outcome			p-value
	Alive	Still birth	Early neonatal death	
15-20	29	11	10	0.001
21-30	41	5	4	
31-40	34	9	7	
Total	104	25	21	

DISCUSSION

A range of studies have been conducted to assess obstetric & neonatal outcomes across the entire spectrum of fertile maternal ages, with a particular emphasis on the oldest and youngest mothers.[8] However in this study feto-maternal complications and fetal adverse outcome were significantly associated to women having age below 20 years and ≥35 years (p=0.001). Consistently Cavazos-Rehg PA et al[9] reported that the complications were higher among old women and among females of age group 11–18 years, in comparison to the females aged 25–29 year, since females of age group 15–19 years had higher odds for postpartum hemorrhage, fetal distress, severe preeclampsia, poor fetal growth and eclampsia, and pregnant females of age group ≥35 years had higher odds for preterm delivery, superimposed preeclampsia, severe preeclampsia, hypertension, and lower risk for chorioamnionitis. Though, Ogawa K et al[2] documented that adolescent females had a higher likelihood of adverse neonatal outcomes including preterm birth, low Apgar scores, and low birth weight, while having a lower risk of caesarean section and no correlation with other adverse maternal outcomes like severe laceration and preeclampsia. They also discovered that the elevated likelihood of negative neonatal outcomes in adolescent girls was somewhat mediated by shorter height of mother indicating the contribution of physical immaturity of mothers. Besides late pregnancy, lower educational status of mothers has been linked to a poor pregnancy outcome, resulting in low birth weight, and this correlation has been linked to the pregnant female's socioeconomic background, leading to late prenatal care and low weight gain.[10] Consistently, in this study un-booking status, residency in rural areas, illiteracy and poor socioeconomic status were seen frequently. In the study of Kenny LC et al[7] it was observed that Older age of mother is linked to a variety of negative pregnancy outcomes, which are not dependent on parity and persist even after accounting for the beneficial impact of higher socioeconomic class. This risk is caused by ovarian senility as well as the increased prevalence of pre-existing chronic illnesses as people get older.[9] However, adverse outcome among adolescent may be because married adolescent generally have no knowledge regarding basic health reproductive issues since most of them are compelled at early age to leave

school. Possibly, due to their inability, financial difficulties, distance, or the necessity for approval from in-laws or spouse, they are unable to access healthcare. As a result, these impediments can increase the likelihood of maternal morbidity and mortality in pregnant adolescents. The precise age at which adverse outcomes for older age mothers become important is unknown, as several recent studies have shown that females of advanced age are more likely to experience pregnancy complications,[12-14] and other found that the adverse perinatal and obstetric outcomes were significantly correlated with teenagers as compared to adult mothers.[15,16] However, this was also a small sample size and single center study and could not adjust for co-morbidities including diabetes and hypertension which have a higher prevalence among older mothers as well as which are independently correlated with adverse outcome of pregnancy. However, there is a need of large sample size multicenter studies by taking all the suspected factors as effect modifiers in all age groups.

CONCLUSION

Pregnancy related toxemia, placenta previa, anemia and pregnancy induced hypertension including low birth weight, still birth and early neonatal death were significantly high among adolescent and advanced aged women compared to Youngers. Further large sample size and multicenter studies are recommended by taking all effect modifiers addressing age feature in pregnancy could help better understand this phenomenon and its implications.

REFERENCES

1. Hanif HM. Association between maternal age and pregnancy outcome: implications for the Pakistani society. JPMA. 2011 Mar 1;61(3):313-9.
2. Ogawa K, Matsushima S, Urayama KY, Kikuchi N, Nakamura N, Tanigaki S. Association between adolescent pregnancy and adverse birth outcomes, a multicenter cross sectional Japanese study. Scientific reports. 2019 Feb 20;9(1):1-8.
3. Chandra-Mouli V, Camacho AV, Michaud PA. WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. Journal of adolescent health. 2013 May 1;52(5):517-22.
4. Londero AP, Rossetti E, Pittini C, Cagnacci A, Driul L. Maternal age and the risk of adverse pregnancy outcomes: a retrospective cohort study. BMC pregnancy and childbirth. 2019 Dec;19(1):1-0.
5. Chandra-Mouli V, Camacho AV, Michaud PA. WHO guidelines on preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. Journal of adolescent health. 2013 May 1;52(5):517-22.
6. Nasrullah M, Muazzam S, Bhutta ZA, Raj A. Girl child marriage and its effect on fertility in Pakistan: findings from Pakistan Demographic and Health Survey, 2006–2007. Maternal and child health journal. 2014 Apr 1;18(3):534-43.
7. Kenny LC, Lavender T, McNamee R, O'Neill SM, Mills T, Khashan AS. Advanced maternal age and adverse pregnancy outcome: evidence from a large contemporary cohort. PloS one. 2013 Feb 20;8(2):e56583.
8. Blomberg M, Tyrberg RB, Kjølhede P. Impact of maternal age on obstetric and neonatal outcome with emphasis on primiparous adolescents and older women: a Swedish Medical Birth Register Study. BMJ open. 2014 Nov 1;4(11).
9. Cavazos-Rehg PA, Krauss MJ, Spitznagel EL, Bommarito K, Madden T, Olsen MA et al. Maternal age and risk of labor and delivery complications. Maternal and child health journal. 2015 Jun;19(6):1202-11.
10. Alves NC, Feitosa KM, Mendes ME, Caminha MD. Complications in pregnancy in women aged 35 or older. Rev Gaúcha Enferm. 2017;38(4):e2017-0042
11. Silvestrin S, Silva CH, Hirakata VN, Goldani AAS, Silveira PP, Goldani MZ. Grau de escolaridade materna e baixo peso ao nascer: uma meta-análise. J Pediatr. 2013;89(4):339-45
12. Luo J, Fan C, Luo M, Fang J, Zhou S, Zhang F. Pregnancy complications among nulliparous and multiparous women with advanced maternal age: a community-based prospective cohort study in China. BMC pregnancy and childbirth. 2020 Dec;20(1):1-9.
13. Scime NV, Chaput KH, Faris PD, Quan H, Tough SC, Metcalfe A. Pregnancy complications and risk of preterm birth according to maternal age: A population-based study of delivery hospitalizations in Alberta. Acta obstetricia et gynecologica Scandinavica. 2020;99(4):459-68.
14. Maeruf H, Robles CC, Woldemariam S, Adhena T, Mulugeta M, Haftu A, Hagose H, Kumsa H. Advanced maternal age pregnancy and its adverse obstetrical and perinatal outcomes in Ayder comprehensive specialized hospital, Northern Ethiopia, 2017: a comparative cross-sectional study. BMC pregnancy and childbirth. 2020;1;20(1):60.
15. Abebe AM, Fitie GW, Jember DA, Reda MM, Wake GE. Teenage pregnancy and its adverse obstetric and perinatal outcomes at Lemlem Karl Hospital, Tigray, Ethiopia, 2018. BioMed research international. 2020 Jan 19;2020.
16. Paller L, Feldman F, Lauria W, et al. Obstetric and perinatal outcomes in teenage pregnancy: a literature review. Int J Fam Commun Med. 2021;5(1):1⍰5