ORIGINAL ARTICLE

To Detect Outcome of Pregnancy in Advanced Maternal Age among Pakistani Women

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ABSTRACT

Aim: To examine the obstetrical outcomes among primiparous and multiparous Pakistani advanced maternal age women.

Methods: A retrospective cohort study conducted at teaching hospitals of KVSS Site Hospital Karachi. From the hospital records, obstetrical characteristics of 585 consecutive women aged 40 or above who delivered from January 2009 to December 2013 were compared with those of 1816 younger mothers aged 20 to 29 years as control cases.Associations betweenparticular obstetrical variables and maternal age were measured with the contigencyX^2 test or two-tailed Fisher exact test.

Results: Advanced maternal ageprimiparous and multiparous were more expected to undertake cesarean delivery than were their younger counterparts (38.5% vs 13.5%, RR=2.85, p<0.05 and 16.1% vs 9.1%, RR=1.76, p<0.05). Older multiparous women had increased incidence of preeclampsia/eclampsia (2.4% vs 0.6%, RR=4, p<0.01); antepartum hemorrhage (1.8% vs 0.8%, RR=2.25, p<0.01); fetal distress (3.5% vs 1.3%, RR=2.69, p<0.01); fetal death (3.5% vs 1.6%, RR= 2.18, p<0.05); postpartum hemorrhage (2.4% vs 1.2%; RR=2, p<0.05); preterm delivery (12% vs 9.2%, RR=1.30, p<0.05); low birth weight (11% vs 7.7%, RR=1.42, p<0.05); admission to special care neonatalogy unit(14.1% vs 10.2%, RR=1.38, p<0.05); low Apgar scores at 1min and 5min; and perinatal mortality (3.5% vs 1.6, RR=2.18, p<0.05).

Conclusion: The results are in concordance with the view that increased risk of adverse perinatal outcome with advanced maternal age is indirectly related to age through the increased risk of obstetrical complications associated with age. Risk to cesarean delivery increases with advance maternal age. Increased risk of antepartum and intra partum complications among multiparous advanced maternal age women were associated to adverse perinatal outcome.

Keywords: Pregnancy, perinatal outcome, Increase maternal age.

INTRODUCTION

Women elder than 35 years have usually been labelledwith “advanced maternal age’, though trends in published studies had advanced this age to 40 years[1]. The average age at childbearing in UK has risen sharply over the last decade and 18% of all pregnant women are now aged 35 or above, compared with 8% in 1990. Similar trends are noted in other parts of the world. This is attributed mainly to a confluence of changing social trends such as pursuance of professional careers and delaying of marriages, as well as to the advancement in assisted reproductive technology[1]. Traditionally, these advanced maternal age women are considered to have higher incidence of obstetric complications and adverse pregnancy outcomes than younger pregnant women[1]. Some controversy still exists in the literature on the pregnancy outcomes at advanced maternal age, some researchers[2,3,4] have suggested compromised pregnancy outcome; others[5,6,7,8] have reported comparable outcome for this subgroup.

Contrary to developed countries where advanced maternal age women are more often primiparous, childbearing at advanced maternal age is more common among multiparous women in developing countries as a result of factors such as lack or ineffective family planning methods, favorable cultural disposition towards large family sizes and poverty[8,10]. Delayed childbearing at advanced maternal age may be attributed to several reasons, late marriage, delayed conception due to infertility, academic and career opportunities, desire for large family, ineffective or lack of family planning and longer life expectancy[8,9]. The current study was aimed to evaluate the obstetrical outcomes among primiparous and multiparous women aged 40 or above and compared them with their younger counterparts aged 20-29 years.

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METHODS AND MATERIAL

This was a retrospective cohort study conducted at the KVSS Site Hospital in Department of Gynecology and Obstetrics with assistance from pediatric unit.All consecutive women aged 40 or above who delivered from January 2009 to December 2013 in the hospitals were recruited as study group alongside young mothers aged 20 to 29 years as control group. For a delivery from an advanced maternal age woman, the next three deliveries from women aged 20-29 years were selected as control group. Thus, assuming approximately 6.0% exposure risk of perinatal complications (intrauterine death, low birth weight, low Apgar scores and early neonatal death within 7days of life) among mothers aged 40 or above and 2.5% exposure risk among younger mothers aged 20 to 29 years, a sample size of 510 cases for study group and 1,530 cases for control group will have 90% power to detect a 3.5% difference in exposure risk between the two groups at 95% confidence interval. Because of increased risk of the adverse outcome in multiple pregnancies, only the singleton pregnancies were included.

Data was obtained from available hospital records. We assessed the following obstetrical characteristics and complications; maternal age, gestational age at birth, birthweight, parity, mode of delivery (vaginal, instrumental, cesarean section), malpresentation, preeclampsia/ eclampsia, antepartum hemorrhage, fetal disproportion, fetal distress (defined as persistent or repetitive abnormal fetal heart rate), fetal death (defined as death of fetus at 28weeks of gestation and above or weighing at least 1000g), postpartum hemorrhage (defined as estimated blood loss exceeding 500ml for vaginal birth or 1000ml for cesarean section), preterm delivery (less than 37 weeks and more than 27 weeks), post term pregnancy, perineal tears, episiotomy, low birthweight (4000g at term), admission to special care neonatalogy unit, low Apgar score (Apgar score at 1min < 7, Apgar score at 5min

The two groups of maternal age were stratified and analyzed according to parity (primiparous and multiparous). Associations between maternal age and selected obstetrical factors were assessed with the contigencyX^2 test or two-tailed Fisher exact test when the frequencies were small. $p<0.05$ was considered statistically significant.

RESULTS

During the study period, 15,855 women gave birth in the teaching hospital, 585 of these women (03%) were ≥ 40 years old at the time of delivery. There were 39(7%) primiparous and 546(93%) multiparous women of advanced maternal age compared to 643(34%) primiparous and 1173(66%) multiparous women of age 20 to 29years old, who were our control group.

Table 1 shows the obstetrical characteristics of women of the two age groups according to their parity. Advanced maternal age women were more likely to undergo cesarean delivery than were their younger counterparts, regardless of parity.

The distribution of women according to antepartum and intrapartum complications and parity in the two maternal age groups is shown in Table 2.

The incidence of perinatal outcomes among advanced maternal age women and their younger counterparts is shown in Table 3.

Table 1: Obstetrical characteristics by maternal age groups and parity

Characteristics	**Primiparous**				**Multiparous**			
	20 – 29 y (n=643)	**≥40 y (n=39)**	**RR**	**P**	**20 – 29 y (n=1173)**	**≥40 y (n=546)**	**RR**	**P**
Maternal age	24.76±2.65	41.28±1.50	-	NS	26.16±2.33	41.53±1.62	-	NS
Mean birth weight (g)	3107.79±53	3161.11±47	-	NS	3219.74±54	3223.81±64	-	<0.05
Mean gestational age at birth (weeks)	38.72±2.26	38.08±3.45	-	NS	38.78±2.07	38.53±2.34	-	<0.05
Parity								
0	1931	39			-	-		
1-2	-	-			1925	159		
3-5	-	-			413	299		
Mode of delivery								
Vaginal	453 (70.5%)	21 (53.8%)	-	NS	899 (76.6%)	359 (66.5%)	0.86	<0.05
Instrumental	104 16.1%)	3 (7.7%)	-	NS	170 (14.4%)	94 (17.4%)	-	NS
Cesarean section	87 (13.5%)	15 38.5%)	2.85	<0.05	107 (9.1%)	87 (16.1%)	1.76	<0.05

Table 2: Antepartum and intrapartum complications by maternal age groups and parity

	Primiparous				Multiparous			
	20-29 y (n=643)	**≥40 y (n=39)**	**PR**	**P**	**20-29 y (n=1173)**	**≥40y (n=546)**	**PR**	**P**
Malpresentation	26(4%)	0	-	NS	48(4.1%)	26(4.9%)	-	NS
Preeclampsia/ eclampsia	7(1%)	0	-	NS	7(0.6%)	13(2.4%)	4	<0.01
Antepartum hemorrhage	3(0.5%)	2(5.1%)	10.2	<0.05	10(0.8%)	10(1.8%)	2.25	<0.01
Fetal disproportion	11(1.7%)	0	-	NS	4(0.3%)	0	-	NS
Fetal distress	24(3.7%)	3(7.7%)	-	NS	16(1.3%)	19(3.5%)	2.69	<0.01
Fetal death	14(2.2%)	1(2.6%)	-	NS	19(1.6%)	19(3.5%)	2.18	<0.05
Postpartum hemorrhage	7(1.1%)	0	-	NS	14(1.2%)	13(2.4%)	2	<0.05
Preterm delivery	59(9.1%)	5(12.8%)	-	NS	108(9.2%)	64(12%)	1.3	<0.05
Post term delivery	20(3.1%)	1(2.6%)	-	NS	42(3.5%)	14(2.6%)	-	NS
Episiotomy	138(21.5%)	8(22.9%)	-	NS	43(3.6%)	11(2.2%)	-	NS

Table 3: Perinatal outcome in advanced maternal age women and younger controls

	Primiparous				Multiparous			
	20-29 y (n=643)	**≥40 y (n=39)**	**PR**	**P**	**20-29 y (n=1173)**	**≥40y (n=546)**	**PR**	**P**
Low birth weight <2500g	59(9.2%)	3(8.3%)	-	NS	91(7.7%)	55(11%)	1.42	<0.05
Macrosomia	20(3.1%)	1(2.8%)	-	NS	62(5.3%)	34(6.8%)	-	NS
Admission to special care neonatalogy unit	98(15.2%)	6(15.4%)	-	NS	120(10.2%)	76(14.1%)	1.38	<0.05
Low Apgar score								
Apgar at 1min < 7	99(15.4%)	10(25.6%)	-	NS	115(9.8%)	87(16.3%)	1.66	<0.05
Apgar at 5min < 7	72(11.1%)	4(10.5%)	-	NS	93(7.9%)	63(12.5%)	1.58	<0.05
Perinatal mortality	14(2.2%)	1(2.6%)	-	NS	19(3.5%)	19(3.5%)	2.18	<0.05

DISCUSSION

Our study shows that nulliparous and multiparous Pakistani women who are giving birth at 40years and above are at higher risk for cesarean delivery when compared to their younger (20-29years) counterparts. However, primiparous advanced maternal age women have no adverse perinatal outcome, while multiparous advanced maternal age women are at higher risk for adverse perinatal outcome, as compared to their younger (20-29years) counterparts. The increased incidence of cesarean delivery among older women in our study has been reported by several authors[12,13,14,15,] In our setting, for the elderly primiparous mothers, because of low fecundity and often the history of infertility, both patients and obstetricians usually adopt the more active approach by elective cesarean delivery. This approach should explain the high rate of cesarean delivery in primiparous older women in our study (38.5% vs 13.5%; RR= 2.85; p<0.05). However, the increased incidence of antepartum and intrapartum complications (antepartum hemorrage, preeclampsia/eclampsia and fetal distress) among multiparous advanced maternal age women explains the significant increased cesarean delivery rate in this group. These complications are usually the indications of elective or emergency cesarean section.

Perinatal mortality rates in advanced maternal age women are in most cases associated with multiparity, low socio-economic status, preterm birth, intrauterine growth restriction, congenital anomalies and peripartum complications such as asphyxia, birth injuries and infections. Interestingly, there are strong indications to support the view that the entire age-dependent group, had an increase in perinatal mortality rate caused by obstetrical complications resulting from age-dependent confounders such as hypertension and diabetes .Our study is in accordance with this view because the perinatal mortality was significantly higher among multiparous advanced maternal women when compared to their younger counterparts. Also, there were higher incidences of pre eclampsia/eclampsia, antepartum hemorrhage, fetal distress, fetal death, preterm delivery among multiparous advanced maternal age.

In this study, the primiparous older women have statistically similar perinatal outcome with their younger primiparous women and similar antepartum and intrapartum complications except antepartum hemorrhage. This result was similar to other reports[5,8]. The authors concluded that advanced maternal age was not necessarily associated with

adverse perinatal outcomes in settings with good antenatal follow-up and favorable maternal disposition to planned cesarean section. Otherwise, similar antepartum and intrapartum complications noted in primiparous older women and younger counterparts in this study can be explained by the higher rate of cesarean section among primiparous advanced maternal age women 38(5%) than their younger counterparts13(5%). This can explain the reduction in the occurrence of intrapartum complications in the group of advanced maternal age women. The tendency of primiparousadvanced maternal age women to be more assiduous to antenatal care could have also contributed to reduce antepartum complications in that group.

We found that multiparous women of advanced maternal age were at increased risk for preterm birth, low birth weight infants, low Apgar score[6].The increased incidence of antepartum and intrapartum complications among multiparous advanced maternal age women explained the adverse perinatal outcomes in this group. So, the increased incidence of fetal distress and preterm birth among multiparous mothers of age 40years and above in this study can be explained by the higher rates of low Apgar scores and admission to special care neonatalogy unit.

This discordance in the perinatal outcome between multiparous and primiparous older women when compared to younger counterparts seems to be a strong indication to support the view that, there is increased risk of adverse pregnancy outcome among advanced maternal age mothers in relation to obstetrical complications resulting from age-dependent factors such as hypertension, diabetes, high parity, uterine myomas and a history of infertility[21]. However, retrospective studies such as this one have substantial limitations and carry considerable risk of ascertainment bias.

CONCLUSION

Advanced maternal age women are at higher risk to cesarean delivery when compared to their younger counterparts. Primiparous older women had similar obstetrical complications and perinatal outcomes with their younger counterparts meanwhile multiparous advanced women had adverse perinatal outcomes and increased incidence of pre eclampsia/eclampsia, antepartum hemorrhage and fetal distress. Our findings seem to support the view that increased risk of adverse perinatal outcome with advanced maternal age is indirectly related to age through the increased risk of obstetrical complications associated with age. Further prospective studies are needed in the areas of complications and birth outcomes of pregnancy in advanced age women.

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