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Research Article

**TO INVESTIGATE THE PREGNANCY OUTCOME IN
ADVANCED MATERNAL AGE: A RETROSPECTIVE COHORT
STUDY**

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Abstract:

Objective: The aim of this was to investigate obstetric outcomes in Pakistani women with advanced maternal age.

Study Design: A retrospective cohort study.

Place and Duration: In the Obstetrics and Gynaecology department of Allied Hospital, Faisalabad for one year duration from 2018 to May 2019.

Methods: 585 obstetric features of women aged forty years and above who delivered were compared from the hospital records of 1816 young mothers with age range of 20 to 29 years. The relationships between some obstetric variables and maternal age were measured using the contingency X² test or Fisher's two-tailed test.

Results: Advanced maternal age multiparous and primiparous were more probable to done with cesarean delivery than their younger counterparts ($RR=2.85$, 38.5% vs 13.5%, Less than 0.05 P) and $RR=1.76$, 16.1% vs 9.1%, Less than 0.05 P). The incidence of preeclampsia / eclampsia was higher in multiparous women in the advanced age group (2.4% versus 0.7%, $p <0.01$, $RR = 4$); fetal distress ($RR = 2.69$, 3.5% versus 1.3%, Less than 0.01 P value); antepartum haemorrhage ($RR = 2.25$, 1.8% vs. 0.8%, Less than 0.01 P value); postpartum haemorrhage ($RR = 2$, 1.2% vs. 2.4%; Less than 0.05 P value); preterm labour ($RR = 1.30$, 12% vs. 9.2%, Less than 0.05 P value); fetal death ($RR = 2.18$, 3.5% vs. 1.6%, Less than 0.05 P value); low birth weight ($RR = 1.42$, 11% vs. 7.7%, Less than 0.05 P value); low Apgar scores 1 min and 5 min; admission to the neonatal special care unit ($RR = 1.38$, 14.1% and 10.2%, Less than 0.05 P value) and perinatal mortality ($RR = 2.18$, 3.5 vs. 1.6, Less than 0.05 P value) was also high in advanced maternal age women.

Conclusion: The results show that the most common adverse perinatal consequences risk with advanced maternal age is related indirectly to age-related obstetric complications risk. The risk of caesarean section increases with progressive maternal age. The high risk of intrapartum and antepartum complications was related to adverse perinatal outcome in elderly multiparous women.

Keywords: pregnancy, increase in maternal age, perinatal outcome.

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INTRODUCTION:

Women over the age of 35 are often called “advanced maternal age”, but trends in published studies have increased to 40 years at this age¹⁻². The average women fertile age in the United Kingdom has increased dramatically in the previous era, and now eighteen percent of females are above or equal to 35 years which were eight percent in 1990³⁻⁴. In other parts of the world; same trends are observed. This is mainly accredited to a combination of changing social tendencies, such as advances in assisted reproductive technology such as seeking professional careers and delay in marriages. Traditionally, it is believed that the adverse pregnancy outcomes and obstetric complications incidence is higher in these older women than in young pregnant women. There is some controversy in the literature about the consequences of advanced pregnancy, some researchers have suggested that it jeopardizes pregnancy outcomes; others reported comparable results for this subgroup⁵⁻⁶. Unlike developed countries where older women are more primitive, progressive maternal age is more among developing countries women due to aspects such as ineffective or deficiency in family planning methods, positive cultural preference for family, poverty and extended families. Delay in maternal age may be due to various causes, late marriages, delaying infertility, academic and professional opportunities, desire to have a large family, ineffective planning and greater life expectancy⁷⁻⁸. The aim of this study was to evaluate obstetric outcomes between primary and multipara women aged 40 years and older and to compare them with younger colleagues aged 20 to 29 years.

MATERIALS AND METHODS:

This retrospective cohort study was held in the Obstetrics and Gynaecology department of Allied Hospital, Faisalabad for one year duration from May 2018 to May 2019. All consecutive women aged 40 years and older who delivered in hospitals included

and young mothers aged 20-29 as a control group. At the birth of an elderly mother, three of the births of women aged 20 to 29 years were selected as the group of control. Thus, among mothers aged 40 and over, approximately 6.0% (low birth weight, intrauterine death, early neonatal death within 1 week of life and low Apgar scores) are among mothers younger than 20 years. Considering the risk of exposure to perinatal complications, for control group 1,530 cases may have 90% power to detect a 3.5% difference in exposure risk among 2 groups at confidence interval of 95%. Because of high risk in multiple pregnancies there are adverse outcomes, primary gravida was selected only. Data were taken from existing records of hospital. We evaluate the subsequent obstetric features and obstacles; gestational age at birth, maternal age, parity, birth weight, mode of delivery (cesarean section, instrumental, vaginal), preeclampsia / eclampsia, poor presentation, fetal disproportion, antepartum haemorrhage, fetal death (defined as fetus death at 28 weeks or more or minimum 1kg weight), fetal pain (defined as recurrent or persistent abnormal heart rate of fetus), postpartum haemorrhage (above 500 ml from vaginal), postpartum pregnancy, preterm labor (more than 27 weeks and less than 37 weeks), episiotomy, perineal tears, low birth weight (4000 g in term), admission to the neonatal ICU, low Apgar score (Apgar score less than 7) 5 minutes later. The two maternal age groups were analysed and classified according to classes (first and multitude): the relationship between maternal age and selected obstetric factors was assessed.

RESULTS:

15,855 total females gave birth in hospital, 585 (03%) of these females were above or 40 years old. The control group consisted of 393 (7%) primary women, 546 (93%) multipara advanced maternal age, 643 (34%) primary women and 1173 (66%) multiparous women.

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 1 shows the women obstetric characteristics in the 2 age groups conferring to their parity. Older mothers were more likely to have a higher C-section than their younger counterparts, regardless of their

accompaniment. Antepartum and intrapartum parity distributions are shown in Table 2 according to the complications in the 2-year-old group.

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

DISCUSSION:

Our analysis demonstrates that multiparous and nulliparous women of Pakistani 40 years of age and older have an increased risk of cesarean section compared to their younger counterparts (20-29 years of age). However, while older married women do not have adverse perinatal outcomes, older elderly women

have a higher risk of adverse perinatal outcomes compared to younger colleagues (20-29 years) ⁹⁻¹⁰. In our study, many authors have reported raised incidence of cesarean section in elderly females. In our environment, we have a history of low fertility and infertility for elderly primiparous mothers, as well as patient and obstetrician.

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 neonatology 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

They usually adopt the most active approach with elective caesarean section. This approach explain the high cesarean delivery rate in elderly females who were primary in our analysis (38.6% versus 13.4%; RR = 2.86; p <0.05). However, the increase in the incidence of intrapartum and antepartum complications (antepartum hemorrhage, preeclampsia / eclampsia and fetal distress) in elderly women explains the significant increase in cesarean rate in this group¹¹⁻¹². These complications are usually indicative of elective or emergency cesarean section. In older females; perinatal mortality rate is related with congenital anomalies, low socioeconomic status, multiparity, intrauterine growth restriction, premature birth, and in most cases with peripartum obstacles such as whooping cough, infection and birth injuries. Stimulatingly, there are strong indicators that sustenance the view that the perinatal mortality rates caused by obstetric complications are the result of age-related confounding factors such as hypertension and diabetes in the entire age-related group¹³. Our study agrees with this because among multiple advanced age females perinatal mortality was higher significantly than in younger colleagues. In addition, preeclampsia / eclampsia, fetal distress, antepartum haemorrhage, fetal death, and the incidence of preterm birth were more frequent among multiparous maternal age. In this analysis, perinatal outcomes of older primiparous women compared to young primary and similar complications before and after prenatal bleeding were statistically similar. These outcomes were same to other analysis. The authors decided that advanced maternal age was not related with undesirable perinatal results in settings with maternal susceptibility to well-planned cesarean section and good prenatal follow-up¹⁴. Otherwise, same intrapartum and antepartum problems observed in older primary and older colleagues in this analysis may be explained by the higher rate of cesarean section in elderly women (38% (5%) compared to younger

colleagues13 %. This may explain the decrease in the formation of intrapartum complications in women in the advanced maternal age group¹⁵. Older primiparous women's tendency to be more confident in prenatal care could also contribute to reducing antepartum complications in this group.

CONCLUSION:

Women with advanced maternal age have a higher risk of cesarean section than younger colleagues. Elderly primiparous women had same perinatal outcomes and obstetric complications with their younger colleagues, whereas adverse perinatal outcomes, preeclampsia / eclampsia, prenatal bleeding and fetal distress incidence were higher in advanced multiparous women. Our findings suggest that the high incidence of adverse perinatal outcome with progressive age of females is related indirectly to age due to high chances of age-related obstetric complications. Further analysis requires in the field of pregnancy outcomes and its complications in advanced age women.

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