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Original Research Article

Maternal age and pregnancy outcomes in elderly mothers

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ABSTRACT

Background: Aim of the study was to compare pregnancy outcomes between women aged 40 or older and those aged 20 to 39 years.
Methods: The retrospective cohort study was conducted at SKIMS medical college, Srinagar between March 2017 to April 2019 in which hospital records of 170 patients who delivered during the study period were analysed.
Results: Among patients of 40 years old and above, obstetric complications are significantly more frequent, with an increased risk of gestational diabetes, pre-eclampsia, gestational hypertension and caesarean delivery. Fetal risk of IUGR, prematurity was significantly greater in patients 40 years of age or older.
Conclusions: A 40-year-old or older mother is more likely to experience medical issues and have more invasive deliveries. Additionally, there is a strong correlation between highly advanced maternal age and unfavourable perinatal outcomes such preterm birth and fetal growth restriction.

Keywords: Advanced maternal age, Pregnancy, Preeclampsia, Gestational diabetes, Gestational hypertension

INTRODUCTION

The term "advanced maternal age" refers to women who are over 35 when they become pregnant. A increased risk of several pregnancy complications exists in women who are 35 years of age or older when they are pregnant. Higher miscarriage rates, genetic abnormalities, and specific pregnancy issues like high blood pressure or gestational diabetes are a few of these complications. Despite these dangers, women can become pregnant and give birth to healthy children after the age of 35. The biggest reproductive drop, according to medical professionals, occurs in your mid- to late-30s. A decline in fertility means the quality and quantity of eggs in your ovaries decreases. This doesn't mean getting pregnant after 35 is impossible (it's very possible). It means 35 is the age when fertility starts to decline more rapidly and your chances for complications increase more significantly. A decline in egg quality is linked to advanced mother age. This implies that your egg quality declines with age. Chromosomal abnormalities are more likely to occur in "older" eggs. In the first trimester, healthcare professionals scan for several of these chromosomal defects. The likelihood of getting the majority of chronic medical illnesses rises with age, which is another reason there are more issues after the age of 35. Simply said, as you get older, your body reacts to certain illnesses differently. Pregnancy and delivery may be impacted by some persistent medical problems.

According to many studies, advanced maternal age is often associated with several obstetrical complications (gestational diabetes, hypertension, pre-eclampsia) and fetal complications (growth retardation, prematurity, fetal

malformation).[1-3] Decades earlier, a pregnancy was considered "late" if it was obtained after 35 years, today the threshold has shifted to 40 years or even 43 or 45 years according to the scientific literature.[3-6] Both extremes of the reproductive age are considered at risk for adverse pregnancy outcomes. Teenage mothers have a higher risk of preterm birth, low birth weight, low Apgar score and postnatal mortality.[7] Therefore, we conducted the present study to evaluate the pregnancy outcomes among women at age of 40 years or older, compared to those who are younger.

METHODS

This retrospective study was conducted in SKIMS medical college, Srinagar between March 2017 to April 2019 in which hospital records of 170 patients who delivered during the study period were analysed. All consecutive records were searched and singleton pregnancies with maternal age of 40 years or more were recruited and assigned as the study group or the group of very advanced maternal age. All singleton pregnancies at age of between 20- and 39-years giving births in the same period were included as the control group. The maternal baseline characteristics, pre-existing medical conditions, pregnancy outcomes, and obstetric complications were evaluated. The primary outcomes of the study were the rates of maternal complications including gestational diabetes, preeclampsia, cesarean section, gestational hypertension, postpartum haemorrhage, and perinatal outcomes including IUGR and prematurity. The selected cases with incomplete data were excluded from analysis.

Statistical analysis

Comparison of baseline characteristics and pregnancy outcomes between the two groups were analysed using t-test and Chi-square test for continuous and categorical data, respectively. A $p<0.05$ was considered significant. Statistical analysis was performed using SPSS software (IBM Corp. Released 2012; IBM SPSS statistics for Windows, version 21.0. Armonk, NY: IBM Corp).

RESULTS

The demographic and obstetric characteristics were same between the two groups (Table 1) There is a significantly higher rate of obstetric pathology with 11.53% of pre-eclampsia for women aged 40 and over compared with 3.26% in the control group and 16.66% vs. 7.60% for gestational hypertension. With regard to gestational diabetes, there was 8.97% of women aged 40 and over, compared to 4.34%. There was significant difference found for postpartum haemorrhage 17.94% vs 5.43%. During the study period, 2 maternal deaths were observed in women aged more than 40 years. For fetal and neonatal outcomes, there is a significantly higher proportion of IUGR, and prematurity. Among patients of 40 years old and above, obstetric complications are significantly more frequent, with an increased risk of gestational diabetes, pre-eclampsia, gestational hypertension and caesarean delivery (Table 2). Fetal risk of IUGR was significantly greater in patients 40 years of age or older 21.79% vs 11.95% ($p<0.001$). Similarly, for prematurity, where the difference observed is significant between the two groups ($p<0.001$).

Table 1: Demographic and obstetric characteristics.

Parameters	40 years and over, (n=78)	20-39 years, (n=92)
Age (In years)	42 (1.8)	31 (2.1)
Weight (Kg)	72 (10)	64 (10)
Height (cm)	154 (4)	154 (5)
BMI (18.5-24.9 kg/m^2)	23 (29.48%)	41 (44.56%)

Table 2: Obstetrical, fetal, and neonatal outcome.

Variables	40 years and over, (n=78) (%)	20-39 years, (n=92) (%)	P value
Pre-eclampsia	9 (11.53)	3 (3.26)	<0.001
Gestational diabetes	7 (8.97)	4 (4.34)	<0.001
Gestational hypertension	13 (16.66)	7 (7.60)	<0.001
Post-partum haemorrhage	14 (17.94)	5 (5.43)	<0.001
Caesarean delivery	36 (46.15)	23 (25)	<0.001
IUGR	12 (15.38)	5 (5.43)	<0.001
Pre-maturity	17 (21.79)	11 (11.95)	<0.001
Fetal death in utero	2 (2.56)	1 (1.08)	<0.001

DISCUSSION

Our results show significant effects of maternal age on perinatal outcomes. Within the present study group, age-related increase of pregnancy induced hypertension and gestational diabetes mellitus were noted, as reported in previous studies.[8-11] The rates of preterm delivery and fetal growth restriction were significantly increased in very advanced maternal age group. Rate of preterm delivery in the present study was consistent with that of several previous studies, which reported to have a relative risk ranging from 1.2 to 2.1.[10-12] A Study reviewed 24′032 pregnancies of women who delivered at age 40 or over, illustrated a higher risk of operative delivery (cesarean, forceps, and vacuum deliveries): 61% compared to the 35% in younger nulliparous women, in spite of lower birth weight and gestational age.[4] The higher risk of developing GDM with advancing age that we confirmed is widely reinforced in literature, and can be explained by the progressive depletion of pancreatic β-cell function that leads to a reduced insulin sensitivity. This data justifies the universal screening in all pregnant women over 35 years old that we currently apply.[13,14]

It is important to consider the link between advanced mother age and fetal fatalities in utero. In all of these situations, providing the patients with clear and reassuring information while carrying out pre-conception close monitoring and during the pregnancy can be more appropriate than worrying them. This would make it easier to identify and handle these difficulties earlier. Additionally, with to advances in technology, a number of hazards are now tracked via pre-implantation diagnosis or even non-invasive prenatal screening. Because of this, it is the responsibility of the obstetrician to educate these women, reassure them, and modify the monitoring of their pregnancies in accordance with the risk factors, the method of conception, and the multifetal gestation.

Although the sample size of women aged at or over 40 years was bigger than that in several prior investigations, the current study has significant limitations because it was still too small to evaluate several uncommon outcomes, such as placental adherence. The socioeconomic situation and educational level were also not taken into account in the current investigation, which is another potential complicating factor. Because delayed child bearing is becoming a common event, the scope of maternal and fetal complications is important for decision management. As shown in the present study, as maternal age increases, the risk of adverse pregnancy outcome is accordingly elevated. This information should be given to women who plan late pregnancy. The elderly women should seek early antenatal care and be taken care by the appropriate multidisciplinary team to minimize the risk for mother and her infant.

CONCLUSION

Medical difficulties and more invasive deliveries are related to maternal age of 40 years or more. Furthermore, unfavourable perinatal outcomes like preterm birth and fetal development restriction are strongly linked to very advanced maternal age.

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