Original Article

Pregnancy Outcomes in Women with Advanced Maternal Age

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ABSTRACT

Introduction: *Recently, there has been a significant increase in the trend of delaying childbirth. Both the average age of first childbirth and the incidence of pregnancies in advanced maternal age (AMA) have risen markedly. This study sought to assess pregnancy outcomes in women of advanced maternal age.* ***Methods & Materials:*** *This cross-sectional study was conducted at the Department of Obstetrics and Gynecology at Rangpur Medical College Hospital, Rangpur, from November 2015 to April 2016. A total of 50 patients were chosen as study subjects through simple random sampling. Data cleaning, validation, and analysis were carried out using SPSS software version 16.0, with various statistical methods employed for the analysis.* ***Results:*** *Preeclampsia was found in 4 (21.1%) primigravida patients. Maximum patients were found cesarean section 16(84.2%). Caesarean section was found in 16(51.6%) multigravida patients, preterm labour in 2(6.5%) patients, low birth weight in 2(6.5%), preeclampsia in 16(51.6%) patients. Concerning obstetric complications, Malpresentation was found in 12(24.0%) patients, gestational hypertension in 1(2.0%) patient, and abruptio placentae in 1 (2.0%) patient. Regarding fetal outcome NICU admission patients were found in 16 (32%) patients, meconium aspiration in 7(14.0%), congenital anomaly in 2(4.0%), and perinatal loss was found in 2(2.0%). APGAR score at 1 minute <7 was found in 19(38.0%).* ***Conclusion:*** *The advanced age of the mother can be an independent risk factor for adverse pregnancy outcomes. Cesarean section, preterm labor, low birth weight, malpresentation, preeclampsia, meconium aspiration, and NICU admission are more frequent in the advanced maternal age group.*

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INTRODUCTION

In recent decades, there's been a notable global shift in the age demographics of those entering childbearing years. Many studies in developed countries have reported an association between advanced maternal age (AMA) and higher risks of congenital anomalies, spontaneous abortions, perinatal mortality, and maternal complications[1]. Managing pregnancies in women over 35 years old necessitates an understanding of how age and existing co-morbidities can contribute to complications during pregnancy and delivery, thereby affecting the likelihood of a healthy outcome[2]. Pregnancies occurring at or after the age of 35 are consistently associated with a higher risk of antenatal complications, including preeclampsia, antepartum hemorrhage, gestational diabetes, preterm birth, and intrauterine growth restriction. Perinatal complications such as low birth weight, birth asphyxia, and perinatal mortality are more prevalent among older women compared to their younger counterparts [3]. Advanced maternal age is recognized as a significant risk factor for pregnancy complications, with numerous studies documenting its association with a higher risk of chromosomal abnormalities and spontaneous miscarriage[4,5]. Compared to younger women, those aged 35 and older face higher rates of spontaneous and induced abortions, increased risk of perinatal death, reduced newborn vitality, lower birth weight, preterm delivery, and infants who are small for their gestational age[6]. These women often see more frequent variations in newborn weight, including both macrosomia and low birth weight for gestational age[7]. Pregnancies in older women have traditionally been classified as high-risk due to an increased incidence of hypertensive disorders, excessive weight gain, obesity, fibroids, diabetes, miscarriages, and cesarean deliveries[8]. However, it's essential to note that age isn't the sole predictor of risk. Various lifestyle elements, such as family medical history, socio-economic status, and demographic factors, significantly influence both maternal and infant well-being[9]. Moreover, women aged over 40 years face a greater risk of chromosomal abnormalities, and delivery before 34 weeks of gestation compared to younger women. As a result, they should receive vigilant monitoring during pregnancy[10]. In higher-income countries, there's a noticeable trend of delaying childbirth to later reproductive years. However, in lower-income countries, expectant mothers vary significantly in sociodemographic characteristics and access to obstetric care services. Despite these differences, advanced maternal age (AMA) still represents a substantial and increasing proportion of pregnant women in these countries[11]. Thus, this study aimed to evaluate pregnancy outcomes in women with advanced maternal age. Advanced maternal age can heighten the likelihood of experiencing complications like gestational diabetes, preeclampsia, placental abruption, and placenta previa during pregnancy.

OBJECTIVE

General Objective

- To assess the results of pregnancy in women of advanced maternal age

Specific Objectives

- To assess the distribution of patients' characteristics by maternal age.
- To observe the distribution of the patients according to gravida in advanced age.
- To recognize obstetric and fetal complications.

METHODS & MATERIA

This cross-sectional study was carried out at the Department of Obstetrics and Gynaecology in Rangpur Medical College Hospital, Rangpur, from November 2015 to April 2016. All pregnant women admitted to the in-patient department of Obstetrics and Gynaecology in Rangpur Medical College Hospital were considered as the study population. A total of 50 patients were selected as study subjects as per inclusion and exclusion criteria. A simple random sampling technique was adopted in this study.

Inclusion Criteria

- All pregnant women > 20 years of age.
- Patients who were willing to give consent.

Exclusion Criteria

- Patients under 20 years of age.
- Patients who suffer from heart, kidney, or liver disease.
- Patients who did not give consent to participate in the study.

Data were gathered through in-person interviews with the mothers using a pre-structured questionnaire, focusing on maternal and fetal outcomes and their complications. Data cleaning, validation, and analysis were performed using SPSS software version 16.0. Categorical data were expressed as mean ± SD (standard deviation). Various statistical methods were employed for data analysis. The results were presented in tables and charts. Ethical approval was obtained from the ethical committee of Rangpur Medical College, and informed written consent was acquired from the participants.

RESULTS

Table I: Age distribution of the study patients (*n*=50)

Age (years)	*n*	%
35-39	47	94.0
40-44	3	6.0
>44	0	0.0
Mean	38.5 ± 3.5	
Range (min-max)	35-43	

A total of 50 patients were included in this study. the majority (47,94.0%) of the patients belonged to the 35-39 years age group. The mean age was found 38.5 ± 3.5 years. [**Table I**]

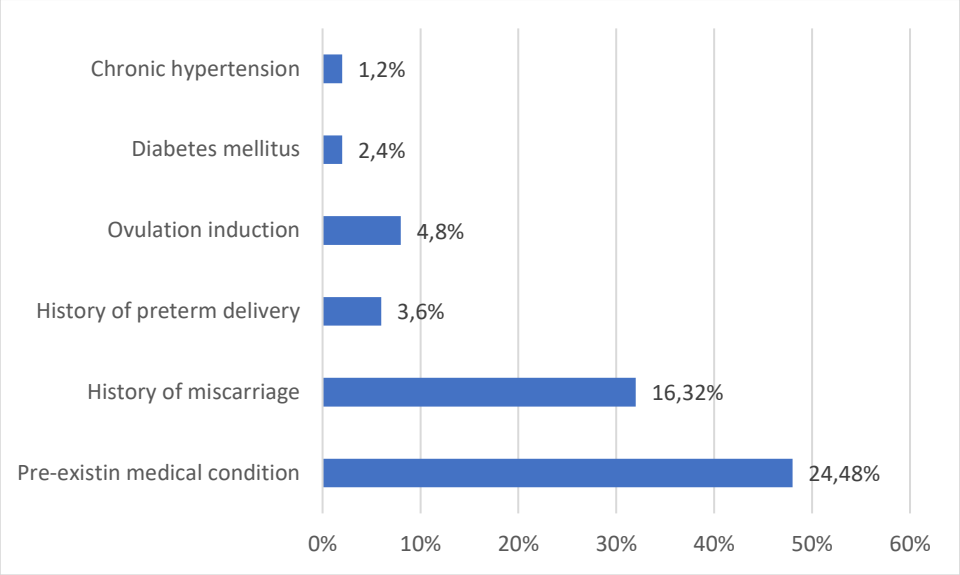

Figure 1: Patient characteristics by maternal age (*n*= 50)

Pre-existing medical condition was found in 26(52.0%) patients, followed by a history of miscarriage in 16(32.0%) patients. [**Figure 1**]

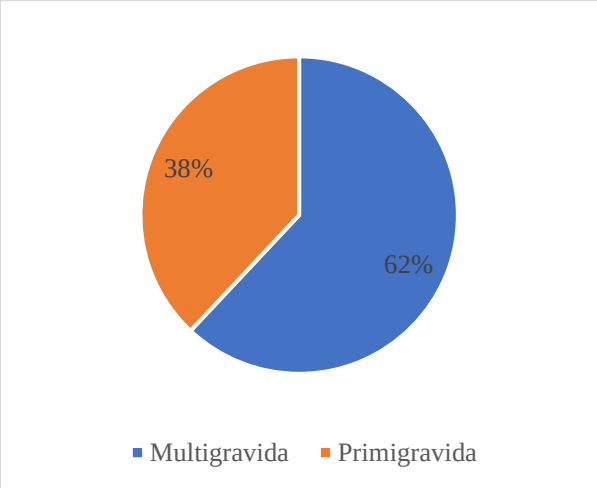

Figure 2: Distribution of the patients according to gravida (*n*=50)

In this series, the majority of the respondents were multigravida (31, 62%), and 19 (38.0%) were primigravida. [**Figure 2**]

Table II: Distribution of the study patients according to BMI (Body mass index) (*n*=50)

BMI (kg/m^2)	*n*	%
18.5 - 24.9	31	62.0
≥25-29	19	38.0
Mean ±SD	28.4 ± 6.7	
Range (min-max)	(21.21-29.0)	

Body mass index range of 18.5-24.9 was found in 31(62.0%) patients. The mean body mass index was found 28.4 ± 6.7. [**Table II**]

Table III: Pregnancy outcomes in primigravida women (*n*=19)

Outcomes	*n*	%
Preeclampsia	4	21.1
Cesarean	16	84.2
Preterm labour	2	10.5
Low birth weight	1	5.3
Gestational diabetes	1	5.3
Placenta previa	0	0.0

Preeclampsia was found in 4 (21.1%) primigravida patients. Maximum patients were found cesarean section 16(84.2%) followed by preterm labor 2(10.5%). Low birth weight in 1(5.3%). [**Table III**]

Table IV: Pregnancy outcomes in multigravida women (*n*=31)

Outcomes	n	%
Preeclampsia	16	51.6
Cesarean	3	9.7
Preterm labour	2	6.5
Low birth weight	6	19.3
Gestational diabetes	3	9.7
Placenta previa	2	6.5

Cesarean section was found in 16(51.6%) multigravida patients. Preterm labour in 2(6.5%) patients. Low birth weight in 2(6.5%). Preeclampsia was found in 16(51.6%). [**Table IV**]

Table V: Distribution of patients obstetric complications (*n*=50)

Complications	*n*	%
Malpresentation	12	24.0
PROM	0	0.0
Gestational hypertension	1	2.0
Abruptio placentae	1	2.0
PPH	0	0.0

Malpresentation was found in 12(24.0%) patients, gestational hypertension in 1(2.0%) patient, and abruptio placentae in 1 (2.0%) patient. [**Table V**]

Table VI: Distribution of fetal complications (*n*=50)

Complications	n	%
NICU admission	16	32.0
Meconium aspiration	7	14.0
Congenital anomaly	2	4.0
Perinatal loss	1	2.0
APGAR score (at 1 minute)		
<7	19	38.0
≥ 7	21	62.0

NICU admission patients were found in 16 (32%) patients. Meconium aspiration in 7(14.0%), congenital anomaly in 2(4.0%). The perinatal loss was found in 2(2.0%). APGAR score at 1 minute <7 was found in 19(38.0%). [Table VI]

DISCUSSION

The age range was found among 35 to 44 years. Similarly, a study found older age group (more than 35 years) has a twofold risk of delivery-related perinatal death at term[12]. In a cohort study, perinatal data of younger women and older (more than 35 years) women had a positive impact on pregnancy outcomes. Almost similar, age range was observed by other investigators[13,8,14]. It was observed that most of the patients had normal body weight; which was 62%. The mean BMI was found 28.4 ± 6.7 kg/m^2 , mirroring other studies[8,15]. In this current study, in women with primigravida and multigravida preeclampsia was found 21.1%, Similar study showed that persons over 35 years increased the risk of preeclampsia in primigravida women almost fivefold[16]. A similar study reported that primigravida women in

advanced age had an increased incidence of preeclampsia (P=0.001) when compared with primigravida women of younger age group[17]. In this series, gestational diabetes was found in 5.3% of patients in primigravida women. A study has demonstrated a significant association between being over 35 years old and the incidence of gestational diabetes in primigravid women[16]. Another study identified damage to the intercellular blood vessels as one of the contributing factors[5]. Another study showed that despite the increasing rate of gestational diabetes in multigravida women with an increase in their age, this increase was not significant. In this current series, placenta previa was not found in primigravida but found in 6.5% of multigravida women. A study showed there is no meaningful relation between women over the age of 35 years and primigravida women with placenta previa, which closely resembles the current study[16]. Another study showed that the increase in the rate of placenta previa with an increase in age 18. It was observed that preterm labor was higher in advanced age, which was 9.7% in multigravida women. The research results indicate that there is a meaningful relationship between the increasing mother's age and preterm labor[19]. Similarly, other studies obtained similar findings in their study, which support the current study[20-22]. Malpresentation was found in 24% of patients. A study reported the malpresentation in aged and young primigravida women as 11.0% and 6.0%, respectively, and concluded that it was significant[23]. In this series, a cesarean was found in 64% of patients. Another study stated that the measure of cesarean in multigravida women over the age of 35 years was 14.0%[5]. In this current study low birth weight was found in 6.5%, similar to another study[5]. Another study found a significant relation between low birth weight and the age of over 40 years, but the risk rate of suffering increased. They understood that mothers above 35 years would usually bear a term infant at the same weight as the control (sample) group[8]. Other studies showed that 16.8% of multigravida women over the age of 35 years would have infants with low birth weight[16]. In this present series of NICU admissions, meconium aspiration, and malpresentation were the more common obstetric complications. Where NICU admission patients were found in 32%, malpresentation in 24%, meconium aspiration in 14%, and congenital anomaly in 4%. APGAR score <7 at 1 minute was found in 38%. The findings were comparable to another study[24].

Limitations of the Study:

The research was conducted at a single hospital with a limited sample size, which may not reflect the broader population.

Conclusion:

The advanced age of the mother can be a risk factor for adverse pregnancy outcomes. Cesarean section, preterm labor, low birth weight, malpresentation, preeclampsia, meconium aspiration, and NICU admission are more frequent in the advanced maternal age group.

Recommendation:

Women aged 35 or older should be advised not to carry a pregnancy beyond 37 completed weeks of gestation. It is recommended that all women take a daily folic acid supplement, particularly during

the preconception period and the first trimester of pregnancy. Ultrasound should be performed to rule out fetal genetic or structural anomalies.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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