

# Obstetric and Perinatal Outcomes in Women $\geq 40$ Years of Age: A Retrospective Study About 421 Cases in Mahdia

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## ABSTRACT

**OBJECTIVES:** All this study is aimed to evaluate obstetrical and neonatal outcomes among women age 40 years and older.

**STUDY DESIGN:** Among 9962 women who delivered in Mahdia's hospital between January 2015 and December 2016, 421 women (4.22%) were 40 years old or older at the time of delivery. Our retrospective study included 421 pregnant women aged more than 40 years and 421 controls aged 18-39, stratified to parity. Data were analyzed using Pearson's  $\chi^2$  test.

**RESULTS:** The mean age of the case group was 41.32 years and that for the control group was 31.25 years. Preeclampsia and diabetes were the most common pathologies ( $p=0.01$ ), the mode of delivery was marked by a high rate of cesarean section. The rate of instrumental extractions was not influenced by age. The rate of neonatal admission and 10-minute Apgar Scores <7 were significantly higher in the older group ( $p<0.05$ ). The rate of abruption placenta, placenta previa, postpartum hemorrhage, and still-birth were increased in mothers over 40 years but there was no difference statically.

**CONCLUSION:** Based on findings, maternal age over 40 years is associated with a high rate of obstetrical, medical complications and cesarean section deliveries. Better pregnancy monitoring helps to improve this risky situation.

**Keywords:** Advanced maternal age, Perinatal outcomes, Pregnancy complications

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## Introduction

Many women are increasingly delaying pregnancy and childbirth in their fourth decade of life for different reasons, such as late marriage, educational and professional reasons (1). Some of them have had the pregnancy involuntarily due to the inappropriate use of contraceptive methods. The optimal

age for pregnancy and the effect of age on pregnancy are subjects that are attracting increased interest among researchers.

The aim of our study was to investigate the association between adverse obstetric and neonatal outcomes and increasing maternal age.

## Material and Method

This retrospective cohort study was performed at the department of obstetrics and gynecology of Mahdia Hospital. The hospital is a tertiary referral center that performs more than 4500 deliveries annually. The study included all women who delivered in our department at 28 weeks gestation or beyond over the 2-years from January 2015 to December 2016. The data were obtained from the hospital's obstetric and neonatal database which includes information on maternal demographics, obstetric history, pregnancy, and labor delivery events, even short-term maternal and neonatal outcomes. These pregnancies were compared with that of parturient (control group) aged less than 40 years given birth during the same period and having the same parity. (Each parturient case was associated with a parturient control who gave birth just after her and who has the same parity).

Statistical analysis was performed using the SPSS statistical program. The Chi-square test was used to examine the effect of maternal age on obstetric outcomes (preterm delivery,

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pre-eclampsia, gestational diabetes, placental abruption, delivery methods, and postpartum hemorrhage) and on perinatal outcomes (low birth weight, intrauterine fetal death and, Apgar score <7 at 5 min and at 10 min). The statistical significance threshold was set to  $p < \text{or} = 0.05$ .

This study confirmed to the principles of the 2008 Declaration of Helsinki and was approved by the local ethics committee of our hospital on the fifth of august 2019 registered under the number P04 GO 2019.

Informed consent for using data is obtained from women participating in this study.

## Results

A total of 9962 women delivered during the study period. Among these, 421 aged over 40 years at delivery (4.22%). 421 women less than 40 years who delivered during the same period were considered as control.

The mean age of women in the case group was 41.32 years and that in the control group was 31.25 years at the time of delivery. Comparisons of maternal and neonatal complications are presented in tables I and II.

The table I presents maternal outcomes; the rates of preeclampsia, gestational diabetes, cesarean delivery, were significantly higher among mothers aged 40 years and older ( $p < 0.05$ ).

Although some complications such as placental abruption, preterm birth, placenta previa were more frequently seen among older mothers, the differences were not statistically significant. Though the rate postpartum hemorrhage was higher in women aged 40 years and above, the difference was not statistically significant.

Table II shows fetal outcomes and shows that the frequencies of very low birth weight <1500g, macrosomia >4500g, 10-minute Apgar scores <7 and neonatal admission were significantly higher in the case group.

There was no difference in the rate of perinatal loss, and intrauterine death between the two groups.

## Discussion

The rate of pregnancies in advanced maternal age has increased and may increase in the years to come. Advanced maternal age is defined by most authors as being greater than 35 years (2-4); however, some authors have been interested in the

Outcomes	Women aged <40 years n° (%)	Women aged ≥40 years n° (%)	p value
Gestational diabetes	63 (16.4%)	91 (23.9%)	0.01
Preeclampsia	11 (2.7%)	26 (6.5%)	0.01
Placental Abruption	2 (2.1%)	4 (4.2%)	0.38
Preterm birth (28-36)	45 (10.7%)	49 (11.7%)	0.66
Placenta Previa	5 (1.2%)	7 (1.7%)	0.56
Instrumental delivery	11 (2.6%)	9 (2.2%)	0.65
Emergency cesarean	93 (22.1%)	125 (29.7%)	0.01
Elective cesarean	47 (11.2%)	81 (19.2%)	0.01
Postpartum Hemorrhage	3 (0.7%)	8 (1.9%)	0.12
Maternal death	0 (0%)	0 (0%)	

**Table II: Neonatal outcomes**

Outcomes	Women aged <40 years n° (%)	Women aged ≥ 40 years n° (%)	p value
Low birth weight <1500 g	1 (0.23%)	7 (1.6%)	0.03
Low birth weight 1500-2500 g	21 (4.8%)	18 (4.23%)	0.73
Macrosomia >4500 g	7 (1.6%)	15 (3.5%)	0.04
Macrosomia 4000-4500 g	63 (14.5%)	41 (9.6%)	0.30
Apgar <7 at 5 min	4 (0.8%)	12 (2.8%)	0.34
Apgar <7 at 10 min	3 (0.6%)	13 (3.08%)	0.01
Perinatal loss	4 (0.9%)	6 (1.41%)	0.50
Neonatal admission	22 (5%)	35 (8.2%)	0.05
Intra uterine death	3 (0.6%)	8 (1.9%)	0.12

group of women over 40 years of age due to the increased incidence and use of assisted reproductive technology, which allows many women to obtain an unexpected pregnancy after the age of 40.

In our study, a higher incidence of maternal medical diseases such as diabetes and hypertensive disorders were seen among the advanced age mother than among the younger mother. Many other reports confirm these findings (5-7). Although the literature has reported other complications such as placenta previa, placenta abruption, preterm birth among women with advanced age; they were not statistically significant in our study (8,9).

Pregnant women aged over 40 years are more likely to undergo a cesarean section, both elective (19.2% vs 11.2%) and emergent cesarean (29.7% vs 22.1%). The high rate of cesarean section was observed in line with published data (10-12). Surprisingly, we did not observe a higher rate of instrumental delivery in women over 40, although we expected a higher risk of failure to progress in labor.

The rate of postpartum hemorrhage was not significantly different. Many studies have found higher rates of postpartum hemorrhage in women with advanced maternal age (13-15).

In our population sample, advanced maternal age was strictly related with very low birth weight (<1500 g); this may be due to a higher percentage of women with other complications such as pre-eclampsia and intrauterine growth restriction. Chan and al. had observed 4.5% of low birth weight babies among women aged 40 years and above versus 7.2% among women aged less than 40 years (16). Neonatal outcome was also studied by us in term of 5-minute Apgar score and neonatal admission. We found that the rate of a 5-minute Apgar score <7 was similar in both groups, but the rate of neonatal admission was observed significantly with women over 40 years; the reason of admission in women aged 40 years and above was respiratory distress (17). Many investigators have reported results that indicate that advanced maternal age is associated with a higher risk of perinatal death (18,19). This association was not present in our study population, possibly because our hospital is a tertiary care center with a specialized neonatal unit.

## Conclusion

In conclusion, increasing maternal age is associated with elevated risks for pregnancy complications, such as preeclampsia, gestational diabetes, cesarean delivery, very low birth weight and high rate of neonatal admission. However, neonatal outcomes were similar pregnancy complications, such as preeclampsia, gestational diabetes, cesarean delivery, very low birth weight and high rate of neonatal admission. However, neonatal outcomes were similar in the older and younger groups in this study. Health care providers

should be taken to advise women of advanced aged about the increased risk of pregnancy complications.

Conflict of interest “The authors declare that they have no conflicts of interest, commercial associations, or intent of financial gain regarding this research”

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*Authors contribution*

*SK conducted the literature searches, participated in data analysis, and wrote the initial draft.*

*L.S and Dh.T revised the draft manuscript for intellectual content.*

*H.B took part in the design of the study and critical reading and revision of the manuscript.*

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