



RESEARCH ARTICLE

VERY ADVANCED MATERNAL AGE: IT IS NEVER TOO LATE!

1, 2, *Amel Fayed

¹College of Medicine, Princess Nourah Bint Abdulrahman University, Saudi Arabia

²High Institute of Public Health, Alexandria University, Egypt

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ABSTRACT

Background: In Arab countries, many women continue to get pregnant until very advanced age. Many studies have investigated the outcomes of pregnancies in women above the age of 35. However, as it is such a controversial topic, there is no certain answer as to whether or not advanced maternal pregnancies affect the mother and baby's health. This study aims to describe the maternal and neonatal outcomes of pregnancy at 45 years and beyond.

Results: A retrospective review of three hospitals records from Riyadh encompassing 15,415 deliveries was carried out. Out of them, 84 women (6 per 1000) aged 45 or more delivered. About 11% of deliveries were preterm and 38% were by Cesarean Section. Low birth weight was reported in 10% of cases and no stillbirth occurred among the studied sample.

Conclusion: Overall, the maternal and neonatal outcomes in this studied sample did not show grave consequences of conceiving at very advanced maternal age. The Saudi mothers suffered from co morbidities such as diabetes and hypertension, which are expected to be common among non-pregnant women of the same age. The preterm labor and low birth weight were lower than those reported globally and comparable to those reported in Saudi Arabia.

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INTRODUCTION

Advanced maternal age, especially beyond 35 years, has been considered relatively more risky for both the mother and the baby (Dildy, Jackson *et al.*, 1996). An amounting percentage of women have delayed pregnancy because of various lifestyle decisions concerning education and making choices about their careers (Jackson, Hong *et al.*, 2015). On the other hand, advances in assisted reproductive techniques had attributed to increased likelihood of having older women conceiving even for the first time (Jackson, Hong *et al.*, 2015). In Arab countries, many women continue to get pregnant until very advanced age because of religious and traditional beliefs (Abu-Heija, Jallad *et al.*, 2000). The impact of advanced maternal age on perinatal outcomes is ambiguous; some researchers have advocated adverse pregnancy outcome, such as preterm delivery (Yogev, Melamed *et al.*, 2010) and still birth (Balayla, Azoulay *et al.*, 2011), to be more common among pregnancies of older mothers. Other researchers raised the concerns about some maternal morbidities such as gestational diabetes and Placenta Previa (Biro, Davey *et al.*, 2012).

At delivery, older women were found to be more likely to give birth by Cesarean section, instrumental delivery and induction of labor (Carolan, Davey *et al.*, 2011). However, other researchers have reported comparable outcome among women who get pregnant at advanced maternal age with those who get pregnant at a younger age (Fretts, Schnittdiel *et al.*, 1995, Dildy, Jackson *et al.*, 1996, Jacobsson, Ladfors *et al.*, 2004, Carolan and Frankowska 2011). Nevertheless, most studies have evaluated pregnancy outcomes in women beyond 35 years and insufficient data exists concerning pregnancy outcome in women who are 45 years and above (Yogev, Melamed *et al.*, 2010). In Middle East, some researchers studied advanced maternal age and its association with adverse maternal as well as neonatal outcomes (Jahromi and Husseini 2008, Alshami, Kadasne *et al.*, 2011), however, these studies predominantly focused on maternal age beyond 40 years. The objective of this study is to describe pregnancy morbidities and outcomes among Saudi Arabian women conceiving at the age of 45 and above.

MATERIALS AND METHODS

A retrospective review of all deliveries that took place in three hospitals in Riyadh during the course of one year, November 2013 to November 2014, was conducted. Hospitals' registries were reviewed and data was obtained from the Labor and

*Corresponding author: ^{1,2}Amel Fayed,

¹College of Medicine, Princess Nourah Bint Abdulrahman University, Saudi Arabia.

²High Institute of Public Health, Alexandria University, Egypt.

Delivery wards filing systems. Women aged 45 years or above, at time of delivery, were included in the study regardless of their parity or obstetric history. Data related to obstetric history of the index pregnancy, along with data about the mode of delivery and the pregnancy outcomes, were included. All patient records/information were anonymized prior to analysis. Descriptive statistics was used to describe the demographic characteristics of the study population and the prevalence of different maternal and neonatal outcomes with 95% Confidence interval (CI) was calculated for each parameter. Data were analyzed using IBM SPSS for Windows (Version 20.0. Armonk, NY: IBM Corp).

Gestational diabetes was detected in 22.4% of participating women while pregnancy-Induced hypertension affected 5.7% of them and only one pregnancy was complicated by preeclampsia. Ultrasound examination revealed one case of polyhydramnios, two cases of intrauterine growth restriction and three cases of antenatal fetal distress. Low birth weight was reported in about 10% of cases and macrosomia was detected in about 5% of the newborn. Seven newborn (8.2%) needed admission to the Intensive Care unit. No stillbirth was observed among the studied sample and no maternal admission to the intensive care unit were reported. No neonatal or maternal deaths were recorded among participants.

Table 1. The obstetric history and the pregnancy outcome of the studied sample

	Number (%)	95% Confidence Interval
Gestational Age		
37-41 weeks	74 (85.1)	77.5-92.7
34-36 weeks	10(11.5)	4.6-18.3
24-33 weeks	1 (1.1)	0.0-3.3
42weeks	2(2.3)	0.0-5.5
Parity		
Nulliparous	1(1.1)	0.0-3.3
multipara	6(6.9)	1.5-12.3
Grand multipara	80(92.0%)	86.2-97.8
Mode of delivery		
Vaginal delivery	52(59.8)	49.3-70.3
Instrumental delivery	1 (1.1)	0.0-3.3
Elective Cesarean Section	13(14.9)	7.3-22.5
Emergency Cesarean Section	20(23.0)	14.0-23.0
Induction of labor	13 (15.1)	7.4-22.8

Table 2. Maternal and Neonatal complications

	Number (%)	95% Confidence Interval
Diabetes Mellitus		
Normal	58(68.2)	58.3-78.2
Pre-Gestational diabetes	8(9.4)	3.2-15.6
Gestational diabetes	19(22.4)	13.5-31.3
Gestational Hypertension		
Pre-existing hypertension	3(3.5)	0.0-7.4
Pregnancy induced hypertension	5(5.7)	0.7-10.7
preeclampsia	1(1.1)	0.0-3.3
Intra-Uterine Growth restriction	1(1.1)	0.0-3.3
Polyhydramnios	2(2.3)	0.0-5.5
Antenatal fetal distress	3(3.4)	0.0-7.2
Birth weight		
Normal(2500-4000 gram)	72(83.7)	75.8-91.6
Low Birth Weight (<2500 gram)	9(10.3)	3.8-16.8
Macrosomia (>4000 gram)	5(5.7)	0.7-10.6
Neonatal admission to Intensive Care Unit	7(8.2)	2.3-14.1

RESULTS

In the current study, 15 415 deliveries were reported in the three hospitals during the studied period. Women aged 45 years or more at delivery were 87 (6 per 1000), 95% CI; 0.48-0.72%, with an average age of 46.2±1.9 and the maximum age was 54 years. All pregnancies were single and no multiple gestations was reported. Table 1 shows the obstetric history and the pregnancy outcome of the studied sample. More than 85% (74) women were full term at delivery (37-41 weeks) and about 11% had pre-term delivery. Nearly 90% of women were grand multipara (parity 5 or more) and only one was nulliparous. Thirty eight percent of the participating women gave birth by Cesarean Section (elective and emergency) and about 15% needed induction of labor. Table 2 displays maternal and neonatal complications of the index pregnancy.

DISCUSSION

Motherhood at or beyond the edge of reproductive age is a new aspect of what clinicians previously referred to as pregnancy in the "older gravida" (Blickstein 2003) Prevalence of this advanced maternal age varies in different populations and is emerging to different degrees. The prevalence of very advanced maternal age among the studied sample was reported to be 6 per 1,000 with a 95% Confidence Interval of 4.8-7.2 per 1,000. This rate is really high when compared to other studies from different countries. A study from the United States (Yogev, Melamed *et al.*, 2010) reported the overall prevalence of childbearing after the age of 45 years to be 0.2% and another study from Australia reported it to be 0.16% (Carolan, Davey *et al.*, 2013). From Jordan, a report in 2000 of 0.33% was published (Abu-Heija, Jallad *et al.*, 2000). In the

United States, the 2001 ratio of women giving birth between the age 45-49 years increased by 190% compared to 1990; there were about 5,000 women that gave birth at 45 years or more (Blickstein 2003). This high rate can be explained by traditions and beliefs that encourage women to get pregnant, even after having a lot of children, and to continue to deliver in their 5th or 6th decade of their life. Additionally, more than 90% of women in the studied sample were grand multiparous (pregnant for her fifth time or more) and only one woman was nulliparous, which affirms the trend of willingness to get pregnant, even though they already have children. Pre-term delivery (before 37 weeks of gestation) in the current study was around 12%. This figure is relatively higher than that reported by (Wahabi, Esmail *et al.*, 2013) who reported the preterm delivery rate among Saudi Arabian general population to be 9%. This depiction of higher rate of preterm delivery among older mothers in relation to younger mothers was confirmed by other researches (Carolan, Davey *et al.*, 2013, Ben-David, Glasser *et al.*, 2015). However, other reports of preterm delivery among older mothers were higher than that of the current study; an American study (Yogev, Melamed *et al.*, 2010) reported 21.5% of women above 45 years gave birth before the 37th week of gestation and Australian study reported it to be around 16.5% (Carolan, Davey *et al.*, 2013).

Cesarean section rate among the studied sample was about 38% and the induction of labor was 15%. This figure exceeded that reported among normal Saudi Arabian population, which is found to range from 15% to 19% (Wahabi, Esmail *et al.*, 2012, Wahabi, Fayed *et al.*, 2014). As confirmed by other researches, older mothers are more liable to give birth by cesarean section than younger mothers (Koo, Ryu *et al.*, , Giri, Srivastav *et al.*, 2013). The indication for cesarean section and induction of labor in this study were not examined, but other researches showed that induction of labor in older mothers is widely practiced as an intervention to lessen the risk of late stillbirth. (Carolan, Davey *et al.*, 2011) Royal College of Obstetricians and Gynecologists in London, published a survey showing that 37% of obstetricians offer induction of labor to women aged 40–44 years and 55% to those \geq 45 years old (Walker KF, Bugg GJ *et al.*, 2012). Elective caesareans in older women are escalating and studies advocate that there is a lower threshold among patients and obstetricians to perform a caesarean section in older women (London 2013). Similar to other recent studies, advanced age mothers were characterized with an increased rate of chronic medical complications, such as pre-gestational diabetes and pre-existing hypertension (Callaway, Lust *et al.*, 2005, Yogev, Melamed *et al.*, 2010, Yogev, Melamed *et al.*, 2010). This may partially explain the increased rate of gestational diabetes, pregnancy induced hypertension, the need for induction of labor, and Cesarean deliveries. In Saud Arabia, the prevalence of pre-gestational diabetes in general population of pregnant women is 3.4% , which was found to be higher than other reports from countries in the same region (Wahabi, Esmail *et al.*, 2012). Nevertheless, in the current study, the percentage of women suffering from pre-gestational diabetes is nearly threefold higher which can be explained by the advanced age and the high prevalence of type 2 diabetes in Saudi Arabian population. Reports about low birth weight in Saudi Arabia are scarce. In a multicenter study of five hospitals in Riyadh

published in 1991 (al-Eissa, Ba'Aqeel *et al.*, 1991), the rate for low birth weight (excluding stillbirth) was 7.4%. The study did not define the advanced maternal age as an independent predictor of low birth weight. Additionally, another research published in 1995 from Taif region (Khalid A. Madani, Hassan A. Nasrat *et al.*, 1995), defined the percentage of low birth weight as 13.6%. The percentage of low birth weight among the studied sample is around 10%, which is not alarming compared to rates reported amongst general Saudi Arabian population. Moreover, this figure is lower than that reported internationally - around 12%. (Carolan, Davey *et al.*, 2013). In contrast to many studies that associated stillbirth with the advanced maternal age (Fretts, Schnittdiel *et al.*, 1995, Yogev, Melamed *et al.*, 2010, Carolan, Davey *et al.*, 2013), the current study did not demonstrate the stillbirth rate as no cases were reported among the studied sample. The small sample size of the studied population may be the reason that attributed to limiting the power of the study to detect stillbirths. One of the limitations of this study is the lacking information about the history of assisted pregnancy among the studied population. This defect is due to the retrospective nature of the study, were some clinical data was not clearly addressed in the hospitals registries. Overall, the maternal and neonatal outcomes in this studied sample did not show grave consequences of conceiving at very advanced maternal age. The Saudi Arabian mothers suffered from co morbidities as diabetes and hypertension, which are expected to be common among non-pregnant women of the same age. The preterm labor and low birth weight were lower than those reported globally and comparable to those reported among general Saudi population. Furthermore, this study shows some reassuring conclusions as maternal and perinatal outcomes were favorable for the large majority of women and babies. This suggests that with attentive antenatal care, most women with very advanced maternal age will achieve a live birth.

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