

Pregnancy and neonatal outcomes at advanced maternal age: prospective results from a tertiary university referral hospital in Barcelona, Spain

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Objective

Delayed childbearing is an growing option nowadays. In Spain, the average age of the first pregnancy is 31 and predictive models of the National Statistic Institute rise that age to 36 years in the middle century. Advanced maternal age women (AMA) are increasing in number due to many socioeconomic reasons and it becomes a challenge for both patients and clinicians. It is known that this group of women present a major number of obstetrical and neonatal adverse outcomes. The objective of this study has been evaluating the incidence of pregnancy and neonatal complications in our population of mothers of advanced maternal age (≥ 40 years), which has doubled in number in the last decade.

Methods

We prospectively collected data from 7059 women who delivered in the University Hospital of Sant Pau, located in the city of Barcelona (Spain), between January 2012 and March 2016. This data was collected by midwives and obstetricians who received specific training about recording the information in the database. We compared the outcomes of women of ≥ 40 years ($n=552$), considering them AMA women, with those younger ($n=6507$). The analyzed variables were parity, previous chronic disease, multiple gestation, need of invasive prenatal diagnosis, incidence of preeclampsia, gestational diabetes, placenta previa, delivery mode, prematurity, low birth weight (LBW) and admission at the neonatal intensive care unit.

Results

A total of 7059 women were analyzed during the study period. Mothers of ≥ 40 years by the time of delivery represented 7, 8% ($n=552$) of the total of pregnant women assisted in our referral area, with a median age of 41, 5 (interval 40 – 51). Group of women < 40 years ($n=6507$) presented with a median age of 31, 65 (interval 14 – 39). When analyzing previous conditions, nulliparous women were less in the group of AMA (40, 21%) than those younger (44, 98%), being this difference statistically significant (p value < 0.001). The incidence of previous hypertensive disorders was higher in the group of AMA, rising to 1, 99% compared with 0, 75% in the group of younger mothers ($p < 0.001$). Also the risk of previous hypothyroidism, sterility and uterine surgery was higher in mothers aged ≥ 40 when compared with younger mothers (6, 88% vs 3, 16%; 7, 6% vs 1, 75%; 1, 26% vs 0, 66% respectively), these differences were statistically significant (p value < 0.001). Multiple gestation incidence among older mothers applied for 9, 05% of all pregnancies in this group, almost three times higher than in the group of mothers under 40 years of age (3, 5%), being this difference statistically significant (p value < 0.001). Data from reproductive techniques was not available to conclude the percentage of these multiple pregnancies related to this factor, but inevitably plays an important role. First trimester screening resulted on high risk ($\geq 1:250$) in 10, 5% of women of AMA women, compared with 2, 2% in the group of younger mothers. This resulted in a need of invasive prenatal diagnosis almost 4 times higher in the group of ≥ 40 years, 16, 12% versus a 4, 36% in the group of < 40 years. Delivery mode was vaginally in 76, 22% of women aged < 40 years, whereas only 60, 14% of mothers in the AMA group achieved a vaginal delivery (p value < 0.001). The incidence of preeclampsia was almost double in the group of AMA (5, 25%) compared with mothers < 40 years (2, 5%), these differences were statistically significant (p value < 0.001). The probability of presenting gestational diabetes was higher among older mothers (11, 77% vs 6, 68%), representing a RR 1, 76 (IC 95% 1, 37 – 2, 25 $p < 0.001$). Although the risk of placenta previa is generally low, in our study resulted also higher in AMA women, with an incidence of 1, 2% vs 0, 6% in women < 40 years (p value < 0.001). The risk of prematurity (< 37 weeks of gestation), was found higher in women ≥ 40 years. Preterm delivery occurred in 13, 58% of gestations in older women compared with 8, 26% incidence in the group of younger mothers (RR 1, 64 IC 95% 1, 31 – 2, 05 $p < 0.001$). Newborns of LBW (< 2500 grams) represented 12, 86% in mothers of ≥ 40 years, whereas in the group of younger mothers the prevalence of LBW was lower (7, 6%), being this difference statistically significant (RR 1, 68 IC 95% 1, 33 – 2, 13 $p < 0.001$). The prevalence of macrosomia (< 4500 grams) was generally very low, and was found even lower in the AMA women group, 0, 54% vs 0, 84% in the younger mothers, but these differences were not statistically significant.

Conclusion

In our population, women with advanced maternal age are at an increased risk of presenting obstetric complications such as preeclampsia, gestational diabetes, previous placenta and caesarean section. Newborns of these mothers also have an increased risk of prematurity, low birth weight and need of admission at the neonatal intensive care unit. Nevertheless, as found in other studies, previous comorbidities have a big impact in these adverse outcomes, and mothers with no previous chronic diseases and healthy lifestyle present better pregnancy results, despite couldn't be evaluated in this study. Moreover, a conscious follow-up of these patients enables the clinician to diagnose and treating prematurely obstetric complications, enhancing outcomes. According to these results and the evidence available, we firmly believe that strategies regarding optimization of mother's health condition before pregnancy and accurate information regarding risk assessment of delayed childbearing may be an effective measure to diminish the risks of motherhood after 40's. Further studies need to be developed to assess risks of advanced maternal age and intervention strategies to improve results in these women.