Is forty the new thirty? Population based study of advanced maternal age

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Introduction

The rate of pregnancies at advanced maternal age is rising worldwide due to advances in assisted reproduction techniques (ART) as women tend to delay their pregnancies because of the significant lifestyle changes during the last decades, especially in Western countries and in women of higher socioeconomic status. [1-3]

Not so many years ago, women in their mid-thirties were considered ‘old’, ‘mature’, or at ‘advanced’ age. [1] Evidently, at that period, pregnancy in the advanced age group was usually the last and unintended gestation, and in the last years these pregnancies are more often the first and intended one. There is insufficient conflicting evidence about the real risks in pregnancies at advanced age. On one hand, there is a potential risk from chronic diseases that women accumulate during life and are more prevalent at an older age. [4-6] On the other, there is evidence that because of the special situation of pregnancy in an advanced maternal age, these women may enjoy closer observation during pregnancy and hence achieve better outcomes.

In this study, we wanted to establish by using a population-based dataset, if there is an actual difference in adverse perinatal outcomes in older women.

Patients and methods

We evaluated singleton births in women over 30 years of age during the period 2003 and 2012. We used the Slovenian Perinatal Information System (NPSIS) which registers all deliveries from 22 weeks’ gestation or birth weight over 500 g. Registration is mandatory by law and more than 140 variables are entered immediately postpartum into the computerized database. We compared perinatal outcomes in women 35 to 39 and women older than 40 years to a reference group of women aged 30 – 34 years. The following variables were evaluated: pregravid body mass index - BMI (body mass divided by the square of body stature, kg/m2); parity, mode of conception, gestational diabetes mellitus (GDM, diagnosed by the 2-step method up to April 2011, followed by the universal 75-g universal screen since May 2011); hypertensive disorders (chronic hypertension, gestational hypertension and preeclampsia); cesarean section rate further divided up to urgent (in labor) and elective (before labor), operative vaginal delivery rate, preterm birth (before 37 weeks’ gestation) further subdivided into those before 33 weeks and those between 33 in 36/7 weeks of gestation.

Table 1: Perinatal results for singleton births in women over 10 years of age. Data are presented as N (%).

<table>
<thead>
<tr>
<th>Age group</th>
<th>N</th>
<th>%</th>
<th>ODDS Ratio (95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-34</td>
<td>4892</td>
<td>36.9</td>
<td>1.0</td>
</tr>
<tr>
<td>35-39</td>
<td>2322</td>
<td>28.0</td>
<td>1.0</td>
</tr>
<tr>
<td>40+</td>
<td>3897</td>
<td>35.1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

For the neonatal outcomes we excluded cases with chromosomal abnormalities, major congenital anomalies, and terminations of pregnancy because of fetal abnormalities. Perinatal mortality comprised stillbirths and neonatal mortality up to 7 days of life. We used the Statistical Package for the Social Sciences (SPSS software) to calculate the odds ratio (OR) and 95% confidence interval (CI) between frequencies. This retrospective study of anonymous entries was exempt of approval by the ethics committee.

Results

In the study period of ten years there were 92901 singleton births to women of 30 years and older (Table 1), including 23422 (25.2 %) in the 35 to 39.9 years group, 3987 (4.3 %) in the over 40 years group, and 65492 births (70.5 %) in our reference group (30 to 34.9 years). We found an increase of the body mass index (BMI) with age. Older women are more frequently obese than younger women and less frequently underweight than younger women. Table 1 shows (1) a direct relationship between maternal age and BMI: the older the mother the higher the pre gravid BMI, (2) an inverse relationship between older age and nulliparity and spontaneous conceptions; (3) a direct relationship between maternal pregnancy complications (GDM, hypertensive disorders, cesarean birth rate, preterm birth and NICU admissions).

Table 2 shows that older mothers had a higher incidence of both types of cesareans, more early as well as late preterm births; however, perinatal mortality was similar in all groups.

Discussion

In this population-based study we confirmed that older women are at increased risk of both maternal and fetal complications. This trend changed significantly for the worse with each marginal age group.

Older pregnant women pose a greater challenge for prenatal care, particularly those with accompanying disorders (obesity, hypertensive disorders, diabetes mellitus etc.), but these challenges are quite manageable with advances in obstetrical care and an attentive prenatal care. One point of reassurance is the low similar perinatal mortality between the age groups in contrast to findings in other some published studies [3-6]. However, one cannot overlook the increasing perinatal mortality rate from 1.0/1000 to 1.5/1000 over the 3 age groups.

The finding of this study should encourage women to consider motherhood at a younger age. However, if women chose for a pregnancy at an advanced age, they should be counselled about the potential risks that appear evident in our study.

References