

Pregnancy outcome in nulliparous women aged 35 or older

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Summary

Our objective was to examine pregnancy outcome in women age 35 and over. We compared pregnancy delivery complications in 207 women aged 35 years and older with 219 control women aged 25 - 29 years. Data was collected retrospectively and stratified by parity. Results of statistical analysis showed that the older women differed significantly in (1) antepartum factors (previous pregnancy experience, chronic and pregnancy-induced hypertension, maternal and gestational diabetes, placenta previa) (2) intrapartum factors (malpresentations, fetal disproportions, abnormal labour, caesarean and operative vaginal delivery) (3) neonatal outcomes (birth asphyxia, prematurity, low birth weight, neonatal intensive care unit admissions). However, birth trauma and perinatal mortality did not differ between the two groups. We concluded that pregnancies in older women are prone to complications, but when managed accordingly the overall perinatal outcomes were good.

Key-words: Age 35 or older, Pregnancy complications.

Résumé

L'objet de notre étude est de décider le résultat de la grossesse chez des femmes âgées de 35 ans et plus. Nous avons comparé des complication des grossesses et accouchement chez 207 femmes âgées de 35 ans et plus avec un groupe témoin de 219 femmes âgées entre 25 - 29 ans.

Les données ont été recueillies retrospectivement et stratifiées par la parité. Résultat d'analyse statistique avait montré que les femmes plus âgées différent sensiblement en : 1). Des facteurs antépartum (expérience précédente de la grossesse, Grossesse chronique et grossesse provoquée par l'hypertension, diabète maternel et gestational prévis placenta), (2) facteurs intracrat (malprésentation, foetale disproportionnelle, accouchement anormal, la césarienne et accouchement vaginal opératoire à travers l'intervention chirurgicale) et (3) résultats néonataux (naissance asphyxie, prématurité, poids de naissance en baisse, admissions dans le service de soins intensifs néonatal). Toutefois, traumatisme à travers naissance et mortalité périnatale n'était pas différente entre les deux groupes.

En conclusion, nous notons que des grossesses chez des femmes plus âgées sont prédisposées aux complications mais quand la prise en charge est correcte, dans l'ensemble, les résultats sont bons.

Introduction

Pregnancy in women aged 35 or older occurs with

increasing frequency as more women delay childbearing. The reasons for this delay are multiple and include delays in marriage and pursuance of professional careers. Traditionally, pregnancies in women of advanced age have been considered as high-risk pregnancies because of the increase in both maternal and perinatal mortality and morbidity. However, once the well-documented increased risk of underlying medical conditions, chromosomal abnormalities and spontaneous abortion are taken into account, it is not clear whether these pregnancies are truly at high risk.

Previous studies that looked at obstetric performance of older mothers have yielded conflicting results. While some studies¹⁻⁶ reported greater risks of adverse outcomes, other⁷⁻¹¹ have found no difference in outcomes between younger and older women. The goals of this study were to determine if pregnancy and delivery complications and perinatal mortality and morbidity were greater in nulliparous women 35 years and older compared to nulliparous women age 25 - 29 years.

Study group

This was a retrospective study of singleton births conducted from January 1, 1990 to December 31, 1999 at Ife State Hospital, Ile-Ife, and Wesley Guild Hospital, Ilesha, both of the Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife. Our study group consisted of nulliparous women aged 35 or older at the time of delivery and who received antenatal care and were delivered at our institutions. For each subject the next nulliparous woman between the age of 25 - 29 who delivered during the study period was used to form the control group. Data was extracted from pregnancy and delivery records and examined for terminology codes relating to pregnancy outcome. Records with incomplete data were excluded. The demographics, antepartum, intrapartum and postpartum diagnoses were recorded in a data sheet.

The mode of delivery, mean birth weight and gestational age were compared between the study and control groups. The following birth outcomes and pregnancy complications were also analysed: birth trauma, birth asphyxia, admission into and length of stay in neonatal intensive care unit (NICU), perinatal death, malpresentations, fetal disproportion, obstructed labour, abnormal forces of labour, prolonged labour, preeclampsia, chronic hypertension, maternal diabetes, gestational diabetes, placenta praevia, prematurity (less than 37 weeks' gestation), and postterm delivery (over 42 weeks' gestation). Statistical analysis for differences in outcomes and complications among groups were performed

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by using the SPSS for Windows, Release 7.0 (Statistical Package for Social Sciences; SPSS, Inc., Chicago IL). Odds ratio (OR) and 95% confidence intervals were calculated. Logistic regression analysis was used to examine the relationship between maternal age and delivery by caesarean section and to control for risk factors and indications for caesarean section.

Result

Records of 481 nulliparous women aged 35 or over at delivery, and of 487 control women aged 25 - 29 years were analysed. Figure 1 shows the age distribution of the study population of women aged 35 or greater at the time of delivery. Majorities were below age 40. Fifty-nine women were 40 years or older at delivery. The oldest women in the case group was 43 (n = 3). The mean age (standard deviation) of the case women was 36.7 (3.3) years, and 26.8 (2.0) for the control women. Our study group differed significantly from the control group in having a higher percentage of women with previous abortion experiences (47 vs 33% respectively, Odds ratio (OR) 1.56%, 95% confidence interval (95% CI) 1.03 - 2.38).

Table 1 shows the various pregnancy and intrapartum complications by maternal age group. There were statistically significant increases in most pregnancy and labour complications among the older nulliparous women compared

with their younger counterparts. The higher rate of malpresentations in the older women may reflect the higher preterm birth rates in the group.

One of the most striking differences between the older and younger nulliparous groups in this study is the higher incidence of caesarean section in the former group. The many complications of pregnancy and labour that occur more frequently in our group of older women could account for the higher caesarean rate. We therefore performed logistic regression analysis to determine whether age was an independent risk factor for caesarean section. Dependent variables were the diagnoses in table 1. The result shows that older nulliparous women had twice the risk of elective caesarean (adjusted OR 2.41% CI 2.02 - 2.87), and four times the risk of emergency caesarean section (adjusted OR 3.17, 95% CI 2.50 - 4.01) compared to their younger counterparts, even in the absence of pregnancy complications.

Table 2 displays the neonatal complications for both older and younger nulliparous women. The rate for traumatic birth injuries was significantly decreased in the older nulliparous group. This may be due to the increased caesarean delivery rate in this group. However, rates for birth asphyxia and NICU admissions were higher for the older groups. No significant difference existed between the two groups with regards to perinatal mortality.

Table 1 Antepartum and intrapartum complications by maternal age. Values are given as n (%)

Complications	Age ≥ 35 years	Age 25 - 29 years	OR (95% CI)
Antenatal			
Pre-eclampsia	13.3	8.4	1.7 (1.1 - 2.5)
Gestational diabetes	4.0	0.8	5.0(1.7 - 14.7)
Chronic diabetes	0.8	0.4	2.0(0.4 - 11.1)
Placenta praevia	2.7	0.8	3.4(1.1 - 10.3)
Abruptio placenta	0.6	0.4	1.5 (0.3 - 9.1)
PROM	3.5	2.1	1.8 (0.8 - 3.8)
Leiomyoma	7.5	2.9	2.7 (1.5 - 5.1)
Malpresentation	10.2	5.3	2.0 (1.2 - 3.3)
Intrapartum			
Labour induction	15.0	10.5	1.5 (1.0 - 2.2)
Abnormal labour	42.2	25.9	2.1 (1.6 - 2.8)
Caesarean section	40.3	17.7	3.2 (2.4 - 4.2)
Postpartum haemorrhage	4.0	4.5	0.9 (0.5 - 1.6)
Retained placenta	6.4	5.3	1.2 (0.7 - 2.1)

Table 2 Neonatal outcome by maternal age. Values given as n (%)

Complications	Age ≥ 35 years	Age 25 - 29 years	OR (95% CI)
Prematurity	11.4	6.6	1.8(1.2 - 2.9)
Low birth weight	10.4	6.8	1.6(1.0 - 2.5)
Small for gestational age	5.2	4.3	1.2(0.7 - 2.2)
Birth asphyxia	7.1	4.3	1.7(1.0 - 2.9)
Birth trauma	0.4	2.1	0.2(0.1 - 0.9)
Perinatal mortality	6.4	5.1	1.3(0.8 - 2.2)

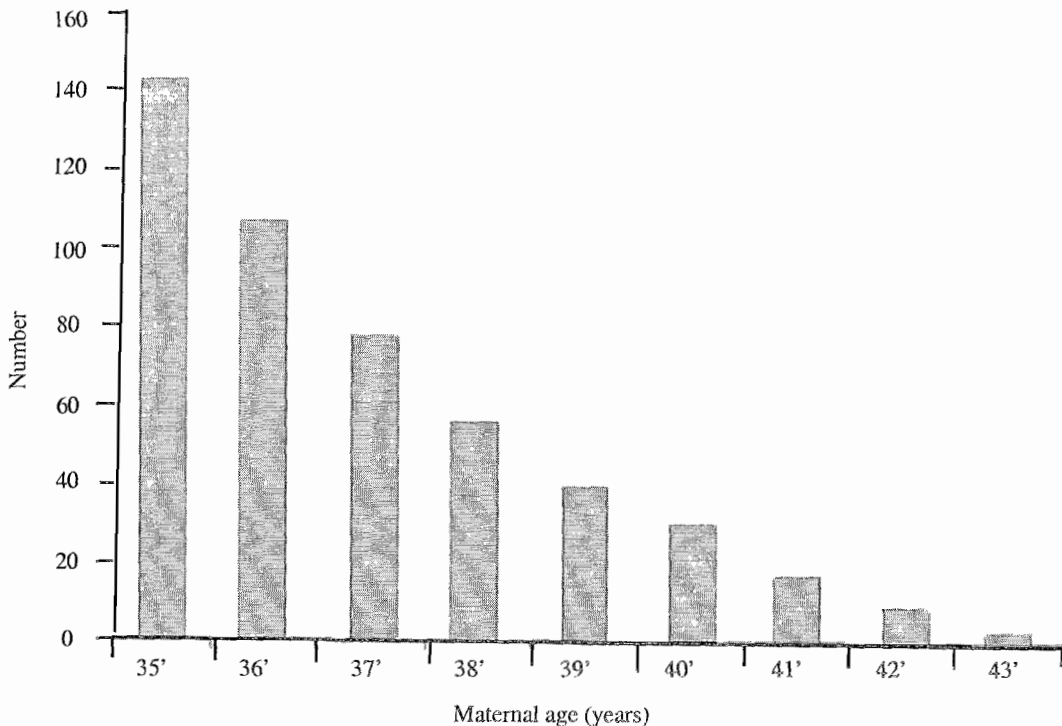


Fig. 1 Age distribution of women 35 years or older

Discussion

This study shows that older women are at risk of virtually every complications of pregnancy and certain underlying maternal diseases compared with their younger counterparts. This finding confirms previous works^{2,1} demonstrating that maternal age 35 years and older increases the risk of preterm birth, preeclampsia, dystocia, prolonged labour, diabetes and hypertension in pregnancy. Although recent reports^{7,11} suggested that despite these increase in complications the overall neonatal outcome is good, there is need for early commencement of careful surveillance during pregnancy in order to achieve excellent pregnancy outcome.

The caesarean delivery rate for the nulliparous women aged 35 or older in this study was 40%, which is more than double the rate for the control group (18%). Data from literature⁷⁻¹² supported this age-related caesarean risk, which may be explained largely by the antepartum or intrapartum complications such as malpresentations and abnormal forces of labour, but patients and physicians anxiety relating to pregnancy outcome in first-time mothers at an advanced age may play a significant role. Older nulliparous women have reached their first pregnancy at the time of age-related decreasing fertility and frequently after a long period of infertility. Consequently these pregnancies are regarded as "premium", hence attempts to reduce the risks of adverse outcome by frequent resort to operative deliveries.

The mean gestational age at delivery for our study population was statistically significantly lower than that for the control population. This finding may be related to the underlying maternal disorders such as diabetes or chronic hypertension in the older group, necessitating earlier delivery. But whether this early delivery is clinically significant is

debatable, as the overall perinatal mortality was not significantly affected. The mean birth weight of infants born to the nulliparous patients aged 35 or older was significantly lower than the younger controls, and may reflect lower gestational age at delivery. This finding is consistent with findings in the literature.⁷ However, for multiparous patients the mean birth weight in some studies was almost exactly the same for older and younger groups,⁷ suggesting that maternal age alone may not be responsible for the observed differences in the nulliparous groups. Parity may well play a role.

Whether the perinatal mortality rate or any component of it is increased in nulliparous women 35 years and older is controversial. Of the previous studies that have examined the issue, some have shown a definite increase,^{2,7,13,14} some non-significant trend towards increase,^{9,11} and others no increase.^{10,15} Our study revealed a nonsignificant trend towards an increase in perinatal mortality in older women. However, our sample size may be too low to detect any significant difference such rare adverse effects as perinatal mortality. However, neonatal morbidity as measured by birth asphyxia, birth trauma and frequency of NICU admission is significantly increased in our study, consistent with reports in older literature.^{4,9} In spite of this, the neonatal outcome is good in terms of perinatal mortality.

Concerning limitation, this study is retrospective and therefore prone to selection bias. Furthermore, we could not definitely identify factors other than pregnancy complications that accounted for the age-related risk of caesarean section found in this study.

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