Is pregnancy over 45 with very high parity related with adverse maternal and fetal outcomes?

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Summary

Objective: To examine whether very high parity and age over 45 years are related with adverse maternal and fetal outcomes. *Study Design:* This study was carried out at the Department of Obstetrics and Gynecology from January 1, 2007 to December 31, 2007. Sixty-one pregnant women were enrolled in this prospective study. Mothers were classified in two groups: the study group (n = 23) included women with very high parity over 45 years of age (age > 45 and ≥ 10 previous live births), and a control group (n = 38) included women with high parity between 40-45 years of age (between 40-45 years and 5-9 previous live births). Hypertensive disorders complicating pregnancy, preterm labor, breech presentation, cesarean section ratio, mean APGAR scores, birthweight, fetal sex, fetal macrosomia, and early neonatal death were compared within groups. *Results:* Six (26%) patients in the study group and 12 (31.5%) patients in the control group had hypertensive disorders of pregnancies ($p > 0.05$). Twelve (52.1%) patients in the study group and 22 (57.8%) patients in the control group had preterm labor ($p > 0.05$). One (4%) patient in the study group and two (5.2%) patients in the control group had breech presentation during delivery ($p > 00.5$). Twelve (52.1%) patients in the study group and 21 (55.2%) patients in the control group had cesarean operations ($p > 0.05$). Mean APGAR scores (at 1 min and 5 min), mean birthweight, fetal sex ratio, fetal macrosomia ratio, and early neonatal death ratio due to prematurity were not statistically significant in the study group as compared with the control group. *Conclusion:* It is generally assumed that women with advanced age have an increased risk for complications during pregnancy. However, prospective population-based studies do not exist and available publications give conflicting views. Based on our results, we hypothesized that cases aged 45 or over with very high parity are not always related with adverse maternal and fetal outcomes.

Key words: High parity; Pregnancy; Age.

Introduction

Pregnant women over 35 years of age are accepted as having advanced age, and being at increased risk of complications during pregnancy and labor such as hypertensive disorders, gestational diabetes, placenta previa or abruptia and cesarean birth [1]. Some pregnancy outcomes in older women may be influenced by parity, Bobrowski *et al.* reviewed the pregnancy outcomes of 9,556 women and found that age and parity influenced the incidence of labor disorders, cesarean operations, gestational diabetes, and macrosomic infants [2].

In contrast, if these women do not have diabetes or hypertension the outcome of pregancy will be comparable with younger-aged pregnant woman. Berkowitz *et al.* studied outcomes of 800 pregnant woman with advanced age and found that slightly increased risks for gestational diabetes, pregnancy-induced hypertension, placenta previa or abruptia and cesarean delivery. The risks of preterm delivery, having an infant who was small for gestational age, or perinatal death did not increase [3].

In our study, we classified mothers into two groups and sought to examine whether very high parity and age over 45 years are related to adverse maternal and fetal outcomes.

Materials and Methods

The study was carried out at the Department of Obstetrics and Gynecology, Dicle University Faculty of Medicine from January 1, 2007 to December 31, 2007. Sixty-one pregnant women were enrolled in this prospective study.

We classified mothers into two groups: the study group (n = 23) included women with very high parity age ≥ 10 previous live births), and age over 45 and the control group (n = 38) included women with high parity (5-9 previous live births) and age between 40-45 years. Hypertensive disorders complicating pregnancy were diagnosed according to the Working Group of the National High Blood Pressure Program [4]. Preterm labor was diagnosed according to the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists [5]. Early neonatal death was defined as death of a live-born infant during the first seven days after birth [6]. Exclusion criteria included patients with pregestational diabetes, chronic hypertension, chronic liver and renal illness. Statistical analysis was performed using the Student's and chi-square tests; a value of $p < 0.05$ was considered statistically significant.

Results

Mean maternal age was 46.43 ± 2.17 in the study group and 41.65 ± 1.79 in the control group ($p < 0.00$). Mean gestational age was 36.43 ± 3.82 in the study group and 36.18 ± 3.25 in the control group ($p > 0.05$). Mean parity was 11.04 ± 1.63 in the study group and 6.15 ± 1.10 in the control group ($p < 0.00$). Six (26%) patients in the

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study group and 12 (31.5%) in the control group had hypertensive disorders of pregnancy (p > 0.05). Twelve (52.1%) patients in the study group and 22 (57.8%) in the control group had preterm labor (p > 0.05). One (4%) patient in the study group and two (5.2%) patients in the control group had breech presentation during delivery (p > 00.5). Twelve (52.1%) patients in the study group and 21 (55.2%) in the control group had cesarean sections (p > 0.05). Mean APGAR score at 1 min was 5.21 ± 1.78 in yhe study group and 5.28 ± 1.85 in the control group (p > 0.05). Mean APGAR score at 5 min was 7.26 ± 2.63 in the study group and 7.63 ± 1.68 in the control group (p > 0.05). Mean birthweight was 2993.47 ± 953.14 g in the study group and 3104.21 ± 920.06 g in the control group. Twelve (52.1%) patients in the study group and 25 (65.7%) in the control group had male fetal sex (p > 0.05), and 11 (47.8%) patients in the study group and 13 (34.2%) in control group had female fetal sex (p > 0.05). Two (8%) patients in the study group and four (10.5%) in the control group had fetal macrosomia (p > 0.05). Two (8%) patients in the study group and three (7.8 %) in the control group had early neonatal death due to prematurity (p > 0.05) (Table 1).

Discussion

It is believed that women over the age of 40 have an increased risk of complications during pregnancy. However, prospective population-based studies do not exist and available publications give conflicting views. Moreower it is diffucult to isolate the effect of parity [1-3].

Studies related to advanced age and preeclampsia show conflicting results. Salihu *et al.* evaluated the outcome of childbearing beyond maternal age 50 and found that the pre-eclampsia rate was 36.4 in 1,000 for the 20-29 age group, but up to 85.3 in 1,000 for the 40-49 age group [7]. Another study found that the relative risk of preclampsia for multiparous women aged 40 or over was 1.96 [8]. Cleary-Goldman *et al.* found the risk for 35-39 year-olds and those over 40 years not to be increased when compared to those younger than 35 years of age [9]. In our study, six (26%) patients in the study group and 12 (31.5%) in the control group had hypertensive disorders of pregnancy (p > 0.05). We found that there was no statistical difference in the incidence of hypertensive disorders of pregnancy in women with very high parity over 45 years of age and women with high parity between 40-45 years of age (p > 0.05).

Maternal age and parity (para > 5) are minor risk factors for spontaneous preterm birth that are important in epidemiological terms [10]. In our study, there was no statistical difference in the incidence of preterm labor between women with very high parity over 45 years of age and women with high parity between 40-45 years of age.

It is known that cesarean delivery non-vertex presentations are more common in older parturients than in women younger than 35, and also it has been demonstrated that the rate of cesarean section increases with age, irrespective of parity [1]. In contrast to the literature data, half of our patients had undergone cesarean sections during delivery but it was not statistically significant between the two groups (p > 0.05). One (4%) patient in the study

Table 1. — *Maternal and infant characteristics of study and control groups.*

Characteristics	Study group (n = 23)	Control group (n = 38)	*p**
Maternal age (years) †	46.43 ± 2.17	41.65 ± 1.79	$p < 0.05$
Gestational age (weeks) †	36.43 ± 3.82	36.18 ± 3.25	NS
Parity †	11.04 ± 1.63	6.15 ± 1.10	$p < 0.05$
Hypertensive disorders of pregnancy (n)	6 (26%)	12 (31.5%)	NS
Preterm labour (n)	12 (52.1%)	22 (57.8%)	NS
Breech presentation (n)	1 (4%)	2 (5.2%)	NS
Cesarean section (n)	12 (52.1%)	21 (55.2%)	NS
APGAR score (at 1 min) †	5.21 ± 1.78	5.28 ± 1.85	NS
APGAR score (at 5 min) †	7.26 ± 2.63	7.63 ± 1.68	NS
Birthweight (g) †	2993.47 ± 953.14	3104.21 ± 920.06	NS
Fetal sex (male) (n)	12 (52.1%)	25 (65.7%)	NS
Fetal sex (female) (n)	11 (47.8%)	13 (34.2%)	NS
Fetal macrosomia (n)	2 (8%)	4 (10.5%)	NS
Early neonatal death (n)	2 (8%)	3 (7.8%)	NS
Cesarean indications	**Study group (n = 12)**	**Control group (n = 21)**	***p*****
Fetal distress	3 (25%)	6 (28.5%)	NS
Fetal macrosomia	2 (16.6%)	4 (19%)	NS
Breech presentation	3 (25%)	1 (4%)	NS
Previous C-section	1 (8.3%)	4 (19%)	NS
Failed induction of labor	1 (8.3%)	3 (14.2%)	NS
Dystocia	1 (8.3%)	2 (9%)	NS
Placenta previa	1 (8.3%)	1 (4%)	NS

*† mean ± standard deviations; * p values were obtained by the chi-square test and t-test; **p values were obtained by the chi-square test; NS = statistically nonsignificant.*

group and two (5.2%) patients in the control group had breech presentation during delivery, but this was not statistically significant.

Chiechi *et al.* retrospectively studied pregnant women over 35 years of age who delivered over a four year period, and the results showed that pregnancy was not a risk for neonatal outcome [11]. In our patients, mean APGAR scores (at 1 min and 5 min), mean birthweights, fetal sex ratio, fetal macrosomia ratio, early neonatal death ratio due to prematurity were not statistically different between groups.

It is generally assumed that women with advanced age have an increased risk for complications during pregnancy. However, most reported age- and parity-related factors are only indirectly related to age and parity, and prospective population-based studies do not exist and available publications give conflicting views. Based on our results, we hypothesized that cases aged 45 or over with very high parity are not always related to adverse maternal and fetal outcomes, as seen in our patients, and antenatal care of older mothers will improve maternal and fetal outcomes.

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