

Perinatal Outcome of Pregnancy on Over Age 40

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Abstract

Objective: The aim of this study is to evaluate the gestational data and complications of pregnant women above 40 years old.

Methods: 337 pregnancies above 40 years were compared with 266 healthy pregnancies as control in our hospital in 2004. Gestational complications as chronic hypertension, preeclampsia, intrauterine growth retardation, intrauterine fetal death, APGAR scores, incidence of premature birth, type of birth and birth weights, perinatal morbidity and the need of neonatal care unit of each group was compared.

Results: Pregnancies above 40 years constituted % 1.6 of all pregnancies in 2004. Chronic hypertension, preeclampsia, intrauterine fetal death, APGAR scores below 7 on the 5th minute, incidence of premature birth, cesarean sectio and postnatal need of neonatal care unit was statistically higher in pregnancies above 40 years. Birth weight and intrauterine growth retardation was not significantly different between groups.

Conclusion: Maternal and fetal complications occur in pregnancies above 40 years. We found similar rates about perinatal mortality, intrauterine fetal death, neonatal death, preterm birth rate, low birth weight, preeclampsia and gestational hypertension data for 40 years and older pregnant women as in the literature. More studies should be performed about antenatal and perinatal problems in older women and more guidelines should be developed about perinatal care.

Keywords: Pregnancy beyond 40 years, gestational complications.

40 yaş üstü gebeliklerin perinatal sonuçları

Amaç: Çalışmanın amacı 40 yaş üstü gebelerin verilerini ve doğum sonuçlarını değerlendirmektir.

Yöntem: 2004 yılında hastanemizde gerçekleştirilen doğumların 337'si 40 yaş ve üstündeki gebelere ait olup, veriler preeklampsi, süregelen yüksek kan basıncı, rahim içi gelişme geriliği, rahim içi fetal ölüm, perinatal hastalık ve yenidoğan yoğun bakım gerekliliği, APGAR skorları, erken eylem ve doğum, doğum şekilleri ve tartıları açısından incelenmiştir; elde edilen veriler, 40 yaş altında rast gele seçilmiş 266 gebenin oluşturduğu kontrol grubunun bulguları ile karşılaştırılmıştır.

Bulgular: 40 yaş üstündeki doğumlar tüm doğumlarımızın %1,6'sını oluşturmaktadır. İleri yaş gebeliklerde süregelen yüksek kan basıncı, preeklampsi, erken eylem ve doğum, rahim içi fetal ölüm, sezaryen ile doğum, beşinci dakika APGAR skorunun 7 ve altında olması ve yenidoğan yoğun bakım gerekliliği genç yaş grubuna göre istatistiksel olarak daha sık gözlemlendi. Doğum ağırlığı ve rahim içi gelişme geriliği açısından istatistiksel olarak anlamlı fark bulunamadı.

Sonuç: Tüm parametreler dikkate alındığında, 40 yaş üstü gebeliklerin %25' inde anne veya fetal sorun gelişmiştir. Literatürdeki verilerle uyumlu olarak, 40 yaş ve üstündeki gebeliklerde perinatal ölüm, rahim içi fetal ölüm, yenidoğan ölümü, erken doğum oranı, düşük doğum ağırlığı, preeklampsi, gestasyonel yüksek kan basıncı daha sık gözlemlendi. İleri yaş gebeliklerde sorunlar ve perinatal sonuçlar ile ilgili daha fazla çalışma yapılmalı, izlem protokolleri oluşturulmalıdır.

Anahtar Sözcükler: 40 yaş üstü gebelik, gebelik sorunları.

Introduction

Recently it has been shown and highlighted that the neonatal morbidity and mortality rate of pregnant women at advanced age is similar to that of young population by a good prenatal monitoring and care.¹ There are several studies about the impact of maternal age as a factor in pregnancy. Although recent studies are mainly concerned about the pregnancies over 35 years of age, there are several others, taking 40 and 45 ages as a threshold value.^{2,3,4} Today many women, particularly the ones in developed countries, delay childbearing beyond their 40 age due to social, economic and educational motives, which continue to become increasingly common in our daily life.⁵

Childbearing women over the age of 35 are defined with "advanced maternal age"² while some other researchers define pregnancies over the age of 40 as "very advanced maternal age".⁶ This group includes infertile cases treated by the infertility methods developed, specifically nulliparous cases.^{7,8} The age-related medical complications and chronic disorders are much higher in this group of pregnancies, which comprises the highest risk group.

It has been reported that chronic hypertension, preeclampsia, low neonatal birth weight, malpresentation, premature delivery and fetal chromosome anomalies are higher in pregnancies at advanced maternal age.^{9,10} It has been also reported that prolonged labor, perinatal disease and death and cesarean section were more frequent in older pregnant women.^{9,10} However, there are some studies suggesting that there is no such a difference between old and young pregnant women in terms of perinatal outcomes.^{11,12}

Methods

A total of 344 pregnant women aged 40 years or over, who delivered in 2004 (between

01.01.2004 and 31.12.2004) at the Bakırköy Training and Research Hospital for gynecology Obstetrics and Pediatrics affiliated with the T.R. Ministry of Health, was evaluated. Out of more than 20.000 deliveries in our hospital within this period, 267 cases under the age of 40 were randomized by their pregnancy monitoring findings, and included in the study as a control group. Miscarriages prior to the gestational week 24 and lower than 500 grams were excluded. Also excluded are multiple pregnancies after assisted reproductive technologies or natural reproduction.

Perinatal mortality and morbidity rates related with complications during pregnancy and delivery, APGAR indexes, early labor (detection of pain or cervical aperture during examination), early delivery, presence of chronic hypertension, presence of preeclampsia and eclampsia were evaluated in 344 pregnant women in the study group in terms of gestational week at delivery, mode of delivery and birth weight. Data were assessed by comparison with the control group.

A Kolmogoroff-Smirnoff test was used to determine the normal distribution of data for statistical evaluation. Student's t test was used to determine the differences between normally distributed data while chi-square (X²) and Mann-Whitney-U Test methods were used for determination of the differences between others. For statistical analysis, $p < 0.05$ was considered significant.

Results

The mean age of our patients was 41 years (minimum 40, maximum 48) in the study group and 25 years (minimum 17, maximum 39) in the control group. Number of pregnancies ($4,4 \pm 2,4$ vs. $2,0 \pm 1,0$; $p=0,000$) and number of deliveries ($2,4 \pm 1,8$ vs. $0,7 \pm 0,8$; $p=0,000$) were higher in the study group, where the difference was statistically significant (Table 1).

Table 1. Descriptive analysis of the group.

Demographical data	< 40 years (n: 267)	≥ 40 years (n: 344)	p
	Mean ± Std. deviation	Mean ± Std. deviation	
Age	25,5 ± 4,7	41,1 ± 1,5	0.000
Number of pregnancy	2,0 ± 1,0	4,4 ± 2,4	0.000
Number of delivery	0,7 ± 0,8	2,4 ± 1,8	0.000
Number of living child	0,7 ± 0,7	2,2 ± 1,6	0.000
Miscarriage	0,2 ± 0,5	0,8 ± 1,2	0.000

Preeclampsia was significantly higher in pregnant women over 40 years of age compared to the control group (9.3% n=32; 1.5% n=4, p=0.000) (Table 2). Similarly, chronic hypertension was also more frequent in the pregnant women at advanced age than in the younger women (2.5% n=43; 0.4% n=1, p=0.000) (Table 2).

Table 2. Age-related complications of pregnancy and delivery during gestation.

	< 40 years (n: 267) (%)	≥ 40 years (n: 344) (%)	p
Preeclampsia and eclampsia	4 (%1,5)	32 (%9,3)	0,000
Chronic hypertension	1 (%0,4)	43 (%12,5)	0,000
Intrauterine growth retardation	14 (%5,2)	23 (%6,7)	0,458
Intrauterine fetal death	1 (%0,4)	12 (%3,5)	0,008
Early labor	3 (%1,1)	22 (%6,4)	0,001
Early delivery	2 (%0,7)	29 (%8,4)	0,000

No statistically difference was found between two groups in intrauterine growth retardation (6.7% n=23; 5.2% n=14; p=0.458) (Table 2).

Intrauterine fetal death was higher in pregnant women at advanced age, and the difference was statistically significant (0.4% n=1; 3.5% n=12, p=0.008) (Table 2).

Preterm labor was higher in the study group than in the control group (6.4% n=22; 1.1% n=3; p=0.001) (Table 2). Based on this, preterm delivery was also higher in pregnancies at advanced age (8.4% n=29; 0.7% n=2; p=0.000) (Table 2).

At advanced maternal ages, the preferred mode of delivery was mainly cesarean section. Delivery by cesarean section was significantly higher in study group compared to control group (44.8% n=154; 30.2% n=81; p=0.000) (Table 3). Motives and frequencies for cesarean section are shown at Table 4.

Table 3. Distribution of mode of delivery by age groups

Mode of delivery	< 40 years (n:267) (grup içi oran %)	≥ 40 years (n:344) (grup içi oran %)	p
Normal vaginal delivery	186 (%69.7)	190 (%55.2)	0.001
C/S abdominals	81 (%30.3)	154 (%44.8)	

Table 4. Distribution of cesarean indications by age.

Indication	< 40 years (n)	≥ 40 years (n)
Malpresentation	3	10
Fetal distress	16	20
Abnormal labor progress	6	4
Macrosomic baby (>4500gr)	7	6
Ablatio placenta	0	4
Placenta previa	0	5
Previous cesarean and elective	39	66
Primary infertility	0	8
Old nulliparous	0	25
Discrepancy between fetal head and maternal pelvis	10	6

Table 5. Neonatal data.

Demographic Characteristics	< 40 years (n: 267)	≥ 40 years (n: 344)	p
Delivery week	40 hafta	39 hafta	0,000
Birth weight (gr)	3300 gr	3310 gr	0,492
Need for neonatal intensive care (rate in age group %)	16 (%6,0)	38 (%11,0)	0,029
Five-minute APGAR <7 (rate in age group %)	1 (%0.4)	14 (%4.2)	0,003

The gestational week at delivery was significantly lower in the study group (39 weeks in study group; minimum 24, maximum 42 weeks; 40 weeks in control group, minimum 32, maximum 42 weeks; p=0.000) (Table 5).

No difference was found between the groups in birth weight (mean 3310 gr in study group, minimum 520 gr, maximum 5050 gr; mean 3300 gr in control group, minimum 1800, maximum 4570 gr, p=0.492) (Table 5).

The five-minute APGAR scores were examined in order to evaluate the perinatal status of the neonate, and seven and six were the accepted threshold values. Based on this, lower APGAR values were higher at advanced maternal age (4.2% n=14; 0.4% n=1; p=0.003) (Table 5).

Postpartum intensive care need and neonatal illnesses were higher in the group of advanced maternal age (11% n=38; 6% n=16, p=0.029) (Table 5).

The statistical analyses carried out after combining all gestational data related with maternal, perinatal and fetal complications showed that frequency of complications was higher in the study group than in the control group (24,7% n=85; 9,4% n=25; p=0,000) (Figure 1).

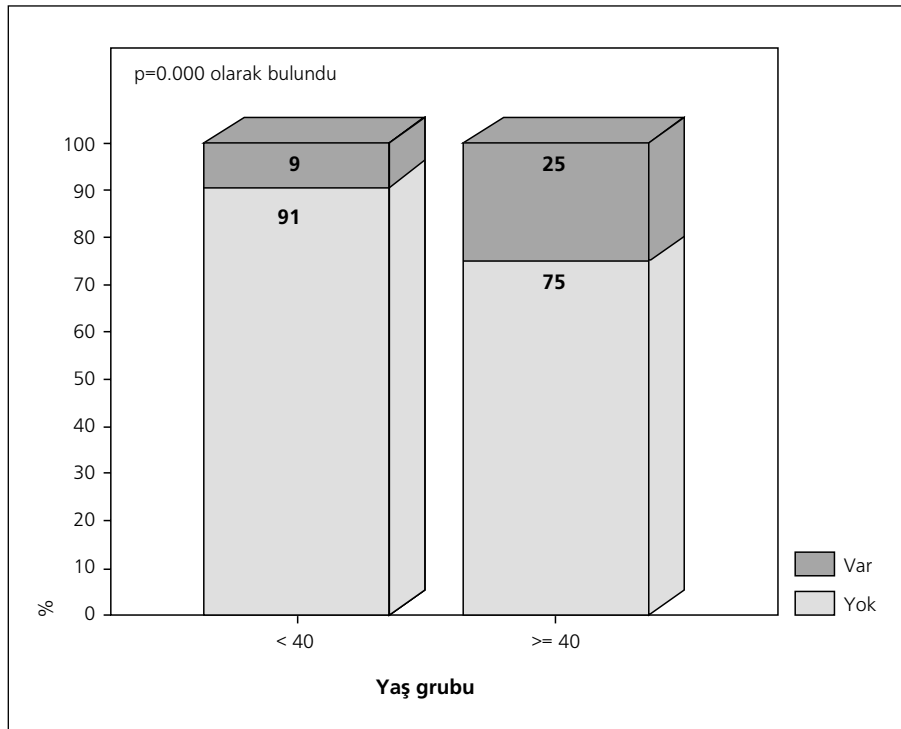


Figure 1. Overall gestational complications by the age group.

Discussion

We have chosen to study a patient population over 40 years of age as pregnancies beyond 40 years are increasing in frequency although there are several studies on pregnancies over 35 years. The trend of conceiving at an older age increases to continue, where the main underlying factors are socioeconomic status and developing infertility techniques. The rate of initial pregnancies between 30 and 44 years of age has been doubled since 1987 compared to the data in 1970 and 1979, which makes the overall rate of pregnancies at older age accounting for 16% of all pregnancies.¹³ Consistent with the literature, the majority of our cases was from the infertility group. Twenty-five of our cases (7.26%) were initial pregnancies aged over 40 years, and 18 of them were conceived with assisted reproductive technologies. The rate of pregnant women who delivered over 40 years of age was 1.67% in our group (337 of 20108 deliveries in 2004), which is consistent with the foreign literature.¹³ Göl et al found a pregnancy rate of 4.85% for pregnancies over 40 years of age.¹⁴

The diagnosis for preeclampsia was significantly higher in pregnant women aged over 40 years compared to the control group in our study. It is shown in the literature that preeclampsia peaked at second trimester in early advanced ages.¹⁵ Although the etiology of preeclampsia is not known in detail, it is sometimes difficult to distinguish an existing hypertension from a pregnancy-induced hypertension. Therefore, frequency of preeclampsia was not found increased in older pregnant women in some studies.¹⁶

Chronic hypertension was also found higher in older pregnant women, and a study by Gilbert reports that the chronic hypertension was five fold in nulliparous older women while it was eight fold in multiparous women.¹⁷ However, some studies suggest that the increased perinatal death in older pregnant women, and increased perinatal death and intrauterine fetal death can not be explained by the concomitant hypertension and pregnancy complications.^{10,12}

Consistent with the literature, there was no difference between the groups in the intrauterine growth retardation. In a study by Abel et al¹⁸ low

birth rates were assessed rather than the growth, including the teenage pregnant women, and it has been reported that the neonatal birth weights were lower in pregnant women at early ages and advanced ages.

Intrauterine fetal death was higher in our study in consistency with the literature, and chromosomal and structural anomalies in the advanced ages are held responsible for the increased intrauterine death.^{17,19} As the maternal age increases, intrauterine loss is increased 2- fold in the pregnant women aged 30 years and over, and 3-4 fold in the ones aged 40 years and over.²⁰

Our data on early labor were consistent with the literature in pregnant women aged 40 years and over.¹⁷ Based on this, hospitalization and requirement for tocolytic treatment were more common in these women compared to the control group. Similarly, it was observed that pregnant women at advanced age delivered their babies one week before than the control group (mean gestational week; 39 in the study group vs. 30 in the control group). However, stimulation by oxytocin and particularly elective termination of pregnancy by cesarean delivery on request of the older women due to concerns about the delivery played an important role in this outcome.¹⁷

Delivery by cesarean section was higher in the pregnant women aged over 40 years.²¹ Among the most common causes are elective operation on request, previous history of cesarean operation, fetal distress and fetal head and maternal pelvis discrepancy. The most common cause was request for elective cesarean operation in nulliparous women while it was previous history of cesarean delivery in multiparous women. The rate of cesarean delivery was 44.8% in pregnant women aged 40 years and over, and 30.2% in the control group. Probably, one of the major motives is that in our hospital we offer cesarean section as an option for mode of delivery in nulliparous women aged over 40 years. In US, for women aged over 40 and 45 years, the rate of cesarean delivery was 22.3% and 31.7% respectively,²² and Göl et al¹⁴ listed malpresentation, abnormal labor progress and previous delivery by cesarean section as the most common causes in women aged over 40 years. The contri-

bution of concerns by physicians and patients into the increasing number of operations is not known. Relative causes like "advanced maternal age-first pregnancy, precious pregnancy" increase the trend to operate.¹⁷

In the Gilbert study¹⁷ it has been indicated that neonatal complications were increased in older women, and rate of birth asphyxia, fetal growth retardation and intraventricular bleeding was higher. Similarly, we have found that the 5-minute APGAR scores were lower in pregnant women at advanced age, and the neonates of this group required neonatal intensive care more frequently, which can be considered secondary to the early deliveries caused by preeclampsia, being more common in this group of patients and other complications.

Perinatal and postpartum complications were more frequent in women aged over 40 years in our study. In this group, chronic hypertension and preeclampsia, intrauterine fetal loss, early membrane rupture, early labor and early delivery were higher. Rate of cesarean delivery and need for neonatal intensive care was higher in women aged over 40 years, particularly together with early delivery. When all data about maternal, perinatal and fetal complications were combined and evaluated, we found that overall incidence of complications was higher in the study group aged over 40 years, and any maternal, perinatal or fetal complication was potential at a mean rate of 25% in such pregnancies. Therefore, pregnant women aged over 40 years should be informed of potential complications, and they should be monitored more frequently and attentively.

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