

# Pregnancy Outcome in Ederly Women Aged 35 Years or Older

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**Abstract :** *OBJECTIVE : To compare the pregnancy complications and outcome beyond 20 weeks in women aged 35 or older with those aged 20-29. STUDY DESIGN : A four years retrospective cohort study from January 1, 1990 - December 31, 1993 was conducted to compare the pregnancy complications and outcome in 3334 women aged 35 or older with 6668 women aged 20-29 who were delivered in the same day. The chi-square test was used to identify trends in individual variables and outcomes. RESULTS : The study group had statistically significant difference in the incidence of diabetes, chronic hypertension, preeclampsia, antepartum hemorrhage, multiple gestation and preterm birth when compared with the control. Older women had Cesarean deliveries twice as often as the younger. Additionally, there was a significantly higher risks of having a low birth weight infant among women who were 35 or older (relative risk 1.30, 95% CI, 1.20-1.38). Stillbirth, perinatal morbidity and mortality were also appreciably increased. CONCLUSIONS : Pregnancies in women of 35 or older have higher rates of complications, Cesarean deliveries and poor perinatal outcome than those aged 20-29. (Thai J Obstet Gynaecol 1994;6:121-127.)*

**Key Words :** Age 35 or older, pregnancy outcome, complications, elderly

Pregnancy in women aged 35 years or older occurs with increasing frequency as more women delay child bearing resulting from dramatic changes in the social role of women, advanced education, effective means of contraception, late marriage, infertility, financial concerns, and an increasing number of working women.<sup>(1,2,3)</sup> Traditionally, pregnancies in women of advanced maternal age are considered

by many authors to be high risk. Perinatal morbidity and mortality are both increased in older women.<sup>(1,4,5)</sup> Early pregnancy wastage is increased because of excessive spontaneous abortions and chromosome anomalies.<sup>(6)</sup> The incidences of preterm delivery,<sup>(4,5,7)</sup> low birth weight,<sup>(4,5,8)</sup> antepartum hemorrhage,<sup>(6,8-10)</sup> preeclampsia,<sup>(8,10)</sup> and other medical complications, i.e. diabetes and hyperten-

sion<sup>(1,2,7,10)</sup> are increased in advanced maternal age. Furthermore, the Cesarean section rate is also increased substantively in older women when compared with those who are younger.<sup>(7,9,10)</sup> Consequently, pregnancy in advanced maternal age requires high technology prenatal care, such as genetic counselling, antenatal genetic diagnosis, amniocentesis, ultrasonography, and electronic fetal heart rate testing to improve perinatal outcome<sup>(11)</sup>

The present study was conducted to compare the pregnancy complications and outcome beyond 20 weeks of gestation in women aged 35 or older with those aged 20-29 years.

## Materials and Methods

A computerized perinatal data base has been set up in the Department of Obstetrics and Gynaecology, Faculty of Medicine, Chiang Mai University since January, 1990. Obstetric data including labor and delivery are recorded at the time of maternal discharge from the hospital. The study population consisted of all patients aged 35 years or older who received their prenatal care and were delivered at this institution during the period from January 1, 1990 through December 31, 1993. For comparison of each study patient, two women aged 20-29 who were delivered in the same day were recruited as the control group. The data were retrospectively analyzed from the computerized perinatal data base that included information about all patients who have given birth at this

institution since January 1, 1990. Computer adapted forms which are part of the official medical record, are completed prospectively and include detailed information on the prenatal, intrapartum, and postpartum courses as well as the neonatal outcome.

Statistical analyses between groups were carried out by using either chi-square test or Student's t-test as appropriate.

## Results

During the four years period, there were 29174 pregnant women who were delivered at Maharaj Nakorn Chiang Mai Hospital, of which 3334 cases were 35 years of age or older, resulting in an incidence of 11.4%. The incidence of elderly gravida had gradually increased from 8.4% in the year 1990 to 8.5%, 10.4% and 11.5% in the year 1991, 1992 and 1993 respectively. The control group consisted of 6668 pregnant patients aged 20-29 years. Among the study group 852 cases were primiparas which contributed the incidence of 25.5%. The pregnancies and their outcomes were analyzed according to four categories including pregnancy complications, intrapartum and postpartum complications and neonatal outcome.

Table 1 shows pregnancy complications compared between the two groups. There was a statistically significant increase in the incidence of diabetes, hypertension, preeclampsia and antepartum hemorrhage in the

**Table 1** *Pregnancy complications*

Complications	Age 20-29 (N = 6668)		Age > 35 (N = 3334)		P-value
	No	%	No	%	
Preeclampsia	188	2.8	112	3.4	< 0.001
Diabetes	60	0.9	151	4.5	< 0.001
Chronic hypertension	42	0.6	40	1.2	< 0.001
Multiple pregnancy	49	0.7	40	1.2	< 0.001
Placenta previa	44	0.7	47	1.4	< 0.001
Abruptio placenta	15	0.2	8	0.2	< 0.05
Myoma uteri	13	0.2	18	0.5	< 0.001

**Table 2** *Intrapartum and postpartum complications*

Complications	Age 20-29 (N = 6668)		Age > 35 (N = 3334)		P-value
	No	%	No	%	
Fetal distress	448	6.7	335	10.0	< 0.001
Nonvertex presentation	170	2.5	105	3.14	< 0.05
Cesarean section	924	13.8	934	28.0	< 0.001
Postpartum hemorrhage	89	1.3	52	1.6	< 0.05

older group. Moreover, myoma uteri and multiple pregnancy were also increased in the study groups.

Intrapartum and postpartum complications are described in Table 2. Fetal distress was diagnosed in 10.4% of the study group compared with 6.7% of the Control group. The older women had Cesarean deliveries twice as often as the younger. The incidence of Cesarean section was significantly higher in the elderly primigravida when compared with the elderly multigravida and the younger group. (36.5%, 25% and 13.3% respectively). Nonvertex presentation appeared to be more common in the

study group. When analyzed in detail about the indications for Cesarean delivery in the study group, previous Cesarean and fetopelvic disproportion accounted for 42% and 18% respectively. While the indications for Cesarean delivery in the control group were fetopelvic disproportion (51%) and previous Cesarean (19.5%). In the elderly primigravid women, the most common indication for Cesarean delivery was fetopelvic disproportion (52%), while infertility reasons accounted for only 12%. Postpartum hemorrhage was significantly higher in the older.

Rates of preterm delivery, low

**Table 3** *Neonatal outcomes*

Outcome	Age 20-29 (N = 6668)		Age > 35 (N = 3334)		P-value
	No	%	No	%	
Preterm birth	720	11.8	515	15.6	< 0.05
Lowbirth weight (< 2500)	753	11.3	529	15.9	< 0.05
IUGR*	558	8.4	315	9.5	< 0.05
Congenital anomalies	69	1.0	91	2.7	< 0.05
Macrosomia	62	0.9	34	1.0	NS
1-Min Apgar < 7	608	9.1	375	11.4	< 0.05
5-Min Apgar < 7	198	3.0	137	4.1	< 0.05
Birthweight + SD (gm)	2968 ± 518		2920 ± 613		< 0.05**
Stillbirth rate	7.0/1000 birth		9.6/1000 birth		< 0.05
Perinatal death rate	13.1/1000 birth		16.8/1000 birth		< 0.05

\* IUGR = Intrauterine growth retardation

\*\* Student's t-test

birth weight (< 2500 gm), growth retarded fetus and congenital anomalies were appreciably elevated in the group of older women (Table 3). The relative risks for preterm birth and low birth weight infants in women aged 35 or older were 1.3 (95% CI, 1.21-1.39) and 1.3 (95% CI, 1.20-1.38) respectively when compared with the risks in women aged 20-29. Low Apgar scores were more common in the study group. There were statistical differences of the stillbirth and perinatal mortality rates in the older study group when compared with the younger control.

## Discussion

The present study shows that the proportion of total births in women aged over 35 is gradually

increased resulting from the trends that many women are delaying childbearing. It can be seen that older women are having more babies and more older women are having.<sup>(1,6)</sup>

Pregnancy complications, both maternal and perinatal developed more often in women aged over 35. The findings of higher rates of specific antepartum complications among women who were 35 or older in this study correspond with findings in previous studies of a positive association between maternal age and preeclampsia,<sup>(4,12,13)</sup> diabetes,<sup>(2)</sup> chronic hypertension,<sup>(7,8)</sup> abruptio placentae,<sup>(6,8,13)</sup> placenta previa<sup>(6,9,13)</sup> multiple gestation,<sup>(9)</sup> and myoma uteri.<sup>(9)</sup>

Yasin and Beydoun,<sup>(14)</sup> in a case control study, found that the incidence of "pure preeclampsia" to be about 5 percent in women in their 40s

as well as in younger control women. Reports from the Oxford Obstetric Data System observed that the incidence of preeclampsia was lower in older primigravid women.<sup>(7)</sup> It is proposed that the incidence of preeclampsia is not increased considerably as a result of advanced maternal age alone unless chronic hypertension antedates pregnancy.

The incidence of most chronic diseases increase as age advances, it is not surprising that medical complications such as, hypertension and diabetes are encountered more frequently in older pregnant women. The present study shows that the incidences of chronic hypertension and diabetes in the older increase 2-fold and 5-fold respectively when compared with the younger. Tuck and colleagues<sup>(7)</sup> observed the incidence of chronic hypertension to be nearly 12 percent in elderly primigravid women, a 3-fold increase when compared with primigravidas aged 20-25. Kirz et al<sup>(2)</sup> observed a 3-fold increase in the incidence of diabetes in pregnant women older than 35 compared with control women aged 20-25.

The incidence of late antepartum bleeding from both abruptio placentae and placenta previa, in this study, is increased in women older than 35. It seems logical that abruptio placentae is increased because of older women have a higher incidence of chronic hypertension, a major risk factor. While the risk of placenta previa increases with multiparity and advanced maternal age<sup>(1)</sup>.

Although virtually all studies including this study have reported that the rate of Cesarean section increases with maternal age, the reason for this finding is not clear.<sup>(2,4,9,10,12)</sup> No one specific indication for Cesarean birth showed an increase in pregnancies of older women. Because pregnancies in older women have been regarded as "high-risk", these may influence decision making in an attempt to reduce the risks of adverse outcomes.

The incidence of low birth weight infants is increased in women over 35 most likely because of increased preterm birth and fetal growth retardation. The incidence of low birth weight infants is increased by a factor of two in women over 35 compared with younger controls.<sup>(6)</sup> The relative risk for preterm delivery in primigravid women over 35 is increased fourfold compared with women aged 20 to 25.<sup>(7)</sup> The increased risk of preterm birth still persisted in this study when multiple gestation and placenta previa were controlled.

Rate of macrosomic babies is increased in older pregnant women when compared with younger women. This may possibly result from the same factors that cause the substantial increase in diabetes with advanced maternal age. Other common factors include large size of mothers with advancing age, maternal obesity, multiparity, prolonged gestation, and prior birth of a macrosomic baby.<sup>(1)</sup> However, Kirz et al showed that the increased rate of macrosomic babies persisted even after excluding the

diabetic mothers<sup>(2)</sup>.

Congenital anomalies, Apgar scores and birth weight categories showed some age related differences. There was an increased incidence of low Apgar scores and congenital anomalies in the infants of the older pregnant women. The incidence of abnormal chromosome has been reported to increase with age in the studies from induced or spontaneous abortions, stillborns, midtrimester amniocentesis, and congenitally anomalous liveborn infants.<sup>(6)</sup> The association of age and congenital anomalies unrelated to morphological chromosomal aberrations is less clear.<sup>(15)</sup>

This study shows that both stillbirth and perinatal mortality were significantly increased in older pregnant women which agrees with reports from several investigators<sup>(4,12,16)</sup>, but differs yet from others which showed no increase in either mothers with<sup>(2,10)</sup> or without such complications<sup>(12,17)</sup> when compared with the younger control. Some of these may well be related to the effectiveness of modern prenatal, intrapartum and neonatal care provided in a tertiary perinatal center.

In summary, this study has shown that pregnancies in women aged 35 or older have an increased risk of adverse perinatal outcome with higher rates of complications, Cesarean deliveries, perinatal morbidity and mortality than those aged 20 to 29.

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