

Effect of Maternal Age on the Course and Outcome of Pregnancy

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ABSTRACT:

BACKGROUND:

Delayed childbirth has become a common phenomenon in the developed world as a result of social, educational, and economic factors .

OBJECTIVE:

To demonstrate the effect of age on the pregnancy course and outcome among young and old mothers.

Subjects & methods:

A cross sectional study was conducted at Al-Kadhimia Teaching Hospital. Data was collected by a trained medical students during the period from first of February to April 2010 .Total of 230 women were included in the study using a convenient random sample technique, the sample was divided into two groups,128 women < 30 years old (group A) and 102 women ≥ 35 years old (group B), and were taken from obstetric department in Al-kadhimiya teaching hospital . Information were directly obtained from the mother herself and filled in a well designed questionnaire form.

RESULTS:

The results showed that there was no significant difference between the two groups regarding some sociodemographic characteristics like address, education, occupation, antenatal care. There was a significant increase in the presence of medical &obstetric complication, parity, history of abortion and No of abortion in the older age group mothers. As to the outcome of pregnancy, twin delivery and low birth weight babies were significantly higher in older age group mothers. Interestingly, there was no significant difference regarding presence of congenital anomalies in babies of mothers in both groups.

CONCLUSION:

Mothers ≥35 years old showed higher rate of obstetric complication than young age group of mothers, while congenital anomalies were higher but not significant among young age group of mothers (≤30 years old).

KEY WORDS: maternal age, outcome of pregnancy

INTRODUCTION:

Advancing maternal age especially aged 35 years or older; has been accepted to have more risks from both the maternal and fetal perspectives. A growing number of women have delayed pregnancy. This has become a common phenomenon in the developed world as a result of social, educational and economic factors such as career goals and late marriage⁽¹⁾. In the USA, there has been a long-term trend of child bearing at older ages, with contemporary birth rates for women aged ≥30 at their highest levels since the

mid-1960s⁽²⁾. However, an older mother may be at increased risk for miscarriage, birth defects, and pregnancy complications such as twins, high blood pressure, gestational diabetes, and difficult labors. In a study conducted in the University of Bamberg it showed that while there may be a greater likelihood of pregnancy complications in older women, their babies may not have more problems than babies of younger women, this is more likely when women receive prenatal care and give birth in a healthcare facility equipped to care for high-risk mothers and babies⁽³⁾. In contrast, in another study it was reported an increase in the fetal death rate among older women. None of these studies have examined the absolute and relative risks of fetal death in

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relation to advanced maternal age over time, taking into account changes in obstetrical practice and the contributions of birth order and maternal risk factors⁽⁴⁾. Health care providers have traditionally viewed any woman over the age of 35, especially one having her first pregnancy, as a high risk patient. Age alone does not predict risk, but several lifestyle factors have major impacts on the well-being of the mother and infant. The number and spacing of previous pregnancies, nutritional status, and prenatal care of the mother also play an important role in the course and outcome of pregnancies among older age women. It is imperative, for all of these reasons, that benefits and risks for the mother and the baby be considered⁽⁵⁾.

In our country things are changing so fast, partly because of the insecure situation which greatly affect women reproductive desire, also partly because most women find themselves either had no work or responsible about big family with absence of manhood with them which make themselves incapable for future planning of their lives. The aim of the present study is to demonstrate the course and pregnancy outcome among young and old mothers attending Al-Kadhimia teaching hospital for delivery.

SUBJECT AND METHODS:

A cross sectional study was conducted in the obstetric department Al-Kadhimia Teaching Hospital for the period from first of February to April 2010. Group of 20 medical students were involved in data collection as part of their training course in the department and were trained on collecting data and the details of the questionnaire were explained to them. Before starting data collection, a pilot sample was collected to assess the practicability of the questionnaire and the data gathering process. The study was approved by the local Scientific Committee in our college. Total of 230 women were included in the study through a convenient random sample technique. The study subjects were 128 mothers aged <30 years old i.e. young mothers named as group A, and 102 aged ≥35 years old mothers (old mothers) named as group B who were attending the hospital for delivery. Information were directly obtained from the mother herself, which include the following variables:

1. Socioeconomic/demographic characteristics like age, residence, occupation, education level.

2. questions about current pregnancy, gestational age, any obstetric complication during the present pregnancy

3. Medical history during the current pregnancy including hypertension and diabetes or any other medical complication.

4. Newborn baby particular question including sex, weight, the APGAR score and presence of congenital abnormalities (usually assessed by the pediatrician)

Exclusion criteria:

1. Women aged 30-34 years old, this is because, the aim of the study is to compare between young mothers and the women with advanced maternal age (AMA)

2. Mothers with chronic conditions like hypertension, diabetes⁽⁶⁾

Data analysis

Data analysis was done using SPSS version 16.0. Frequency and percentage were used, chi square test was used for test of association, P. value less than or equal to 0.05 was considered as significant throughout data analysis.

RESULT:

Table 1 shows demographic characteristics of the two groups of women in which the majority of them were from urban area, they were housewives (78.1% in young vs 74.5% in old group) and most of them have 6-12 years of education, there was no significant difference between the study variables among the two groups.

Table 2 shows that 77.3% of young group having antenatal care with a comparable percentage in old group (73.5%), young group show lower & significant level of preterm deliveries 24.2% vs. 36.3%. There was significant difference between the two groups regarding parity

Table 2 showed that young group reported a higher history of single abortion, (71.8%) compare to (48.8%) in old group, while it was (28.8%) compare to (51.2%) in old group for ≥ 2 abortion with statistical significant difference between the two groups (p<0.05).

The pregnancy outcome for the two groups showed that twin delivery occur in 2.3% of women in young group compare to 6.05% in old group with significant difference between the two groups (p<0.05). 12.5% of young group babies were among low birth weight category (Birth weight<2.5Kg) compared to 21.6% among babies of old women, a difference of significant value (P<0.05) table 4. 10.2% of babies in young group had congenital anomalies compared to

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9.8% in old group. The number of babies with congenital anomalies was 13 in young women compared to 10 in old group, The highest percentage was congenital heart disease which was 38.4% among young women and 20% among old women , mongolism occur only in old group (20%) (table 4), Table 5 shows that young age group has significantly lower frequency of hypertension compared to the older

age group (13.3% vs24.4%) (P< 0.05). Gestational diabetes showed no significant trend. Similar picture is presented regarding anemia. Most of obstetric complications in both groups were antepartum hemorrhage (75% in young and 59.4% in oldgroup) next was preeclampsia(25%) in young, while it was 21.6% old group), eclampsia and abruptio placentae was not reported in young women.

Table 1: Sociodemographic characteristics of study groups.

Demographic variables	Group A* (n=128)		Group B** (n=102)		Total (n=230)		P-value
	No	%	No	%	No	%	
Address							N.S
Urban	109	85.2	82	80.4	191	83.04	
Rural	19	14.8	20	19.6	39	16.96	
Occupational							N.S
Housewife	100	78.1	76	74.5	176	76.53	
Employed	2.5	20.3	25	24.5	51	22.17	
Self employed	2	1.6	1	1.0	3	1.30	
Education							N.S
<6years	23	18.0	22	21.6	45	19.57	
6-12year	70	54.7	57	55.9	127	55.22	
>12years	35	27.3	23	22.5	58	25.21	

* young mothers

** old mothers

Table 2: Distribution of study groups according to obstetric history variables.

Obstetric history	Group A* (n=128)		Group B** (n=102)		Total (n=230)		significant P -Value
	No	%	No	%	No	%	
Antenatal care							N.S
Yes	99	77.3	75	73.5	174	75.65	
No	29	22.7	27	26.5	56	24.35	
Gestational age							$\chi^2=3.962$ DF=1 p<0.05
<37 weeks	31	24.2	37	36.3	68	29.57	
>=37 weeks	97	75.8	65	63.7	162	70.43	
Obst Complications							$\chi^2=42.57$ DF=1 p<0.001
Yes	4	3.1	37	36.3	41	19.7	
No	124	96.9	65	63.7	189	80.3	
Parity							$\chi^2=29.19$ DF=2 P<0.05
Primipara	38	29.7	9	8.8	47	19.25	
2-5 deliveries	87	68.0	73	71.6	160	69.8	
>5 deliveries	3	2.3	20	19.6	23	10.95	
History of abortion							Significant P-Value
No							
Yes	89	69.5	61	59.8	150	65.2	$\chi^2=236.779$ DF=1 P<0.05
No. of abortion	39	30.5	41	40.2	80	34.8	
Single							$\chi^2=4.41$ DF=1 P <0.05
≥ 2 abortion	28	71.8	20	48.8	48	60	
	11	28.2	21	51.2	32	40	

* young mothers

** old mothers

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Table 3: Distribution of the two groups according to mode of delivery and to outcome of pregnancy

Types of delivery	Group A* (n=128)		Group B** (n=102)		Total (n=230)		significant P-Value
	No	%	No	%	No	%	
Vaginal delivery	60	46.9	39	38.2	99	43.0	N.S
Breech delivery	2	1.6	2	2.0	4	1.8	
Elective CS	35	27.3	29	28.4	64	27.8	
Emergency CS	31	24.2	32	31.4	63	27.4	
Outcome of pregnancy	Group A (n=128)		Group B (n=102)		Total (n=230)		significant
	No	%	No	%	No	%	
Baby							$\chi^2=5.93$ DF=1 p<0.05
Single	125	97.7	92	90.2	217	93.95	
Twin	3	2.3	10	9.8	13	6.05	
Congenital anomalies							N.S
Yes							
No	13	10.2	10	9.8	23	10.0	
Weight of baby							$\chi^2=3.4$ DF=1 p=0.05
<2.5 kg	115	89.8	92	90.2	207	90.0	
>=2.5 kg	16	12.5	22	21.6	38	17.05	
	112	87.5	80	78.4	192	82.95	

* young mothers

** old mothers

Tables 4: Distribution of the two groups according to the types of congenital anomalies

Types of cong. anomalies	Group A (n=13)		Group B (n=10)		Total (n=23)	
	No	%	No	%	No	%
Cleft lip & palate	3	23	2	20	5	21.7
Cong. Heart dis.	5	38.4	2	20	7	30.4
Hydrocephalus	2	15.3	2	20	4	17.3
Mongolism	0	0	2	20	2	8.6
Spina bifida	3	23	2	20	5	21.7

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Table 5: Distribution of the two groups according to medical & obstetric complication during current pregnancy.

Medical complication	Group A* (n=128)		Group B** (n=102)		Total (n=230)		Significant P-Value
	No	%	No	%	No	%	
Hypertension							$\chi^2=9.08$ DF=1 P<0.05
Yes	17	13.3	30	29.4	47	21.35	
No	111	86.7	72	70.6	183	78.65	
Gestational diabetes							N.S
Yes	6	4.7	8	7.8	14	6.25	
No	122	95.3	94	92.2	216	93.75	
Anemia							N.S
Yes	67	52.3	50	49.0	117	50.65	
No	61	47.7	52	51.0	113	49.35	
Obstetric complications*	Group A (n=4)		Group B (n=37)		Total (n=41)		
	No	%	No	%	No	%	
APH							
Preeclampsia	3	75	22	59.5	25	61.0	
Eclampsia	1	25	8	21.6	9	22.0	
Abruptio placntae	0	0	2	5.4	2	4.9	
	0	0	5	13.5	5	12.9	

* young mothers

** old mothers

DISCUSSION:

In the present study mothers with higher education (more than 12 years) were in young group of mothers compared to those in the second group, and this may be related to the opening of Iraqi society toward female education in the last decades. Unfortunately this study shows that older women have lower attendance to antenatal care (73.5% compared with 77.3% in young age) partially this may be related to the idea of most older women that they are old enough and had the experience to pass the pregnancy without the help provided by the antenatal care units, this result disagreed with other studies^(7,8) the present study found that women above 35 years have higher rates of preterm labors, which agree with what had been found in other studies^(4, 9). this can be explained by the lower rates of antenatal care visits or higher incidence of multiple pregnancy associated with old age which is known to be a risk factor for preterm delivery.

Older age mothers associated with increase incidence of miscarriage, this is mainly due to chromosomal abnormalities associated with

advanced maternal age the result agreed with other studies^(4, 5, 10, 7, 11).

Also there was higher incidence for CS in older age group 59.8% compared with 51.5% in young age, this was also found other studies^(4, 12-15) The reasons for this clinically important and increased risk are unclear, but may be due to physician and patient concern over pregnancy outcome in older women. Some postulate deteriorating myometrial function with increasing age as the reason for dysfunctional labor in women of advanced maternal age⁽¹⁾.

Advanced maternal age found to be associated with significantly higher incidence of multiple pregnancies⁽¹⁵⁾, the incidence in the present study was 9.8% compared with 2.3% in young age. usually fertility decreases with age, so, the increased utilization of assisted reproductive techniques, especially in women of advanced maternal age may be considered as a risk factor for multiple pregnancy⁽¹⁾.

Low birth weight is another complication found to be associated with advanced maternal age. The present study found that the proportion of

women over 35 years who had give birth to low birth babies were significantly higher (21.6%) compared with only 12.5 % in younger age group. This may be related to the increased risk of multiple pregnancy and /or preterm labor which in turn responsible for the low birth babies (1, 17).

Older age women are more liable for medical complication such as hypertension and gestational diabetes^(7, 17-20) and this goes with the result of the present study , this may be due to the association of an increased incidence of hypertension with increasing age in the nonpregnant state is continued when pregnancy occurs.

Regarding diabetes the older women in present study who have gestational diabetes were 7.8% compared with only 4.7% in the young age group.

The most striking things in this study is that congenital anomalies found to be higher in the young group of mothers than among the older age (10.2%) compared with (9.8%) this result is not compatible with other studies^(7, 11). exposure of Iraqi people to environmental pollution from war may be a responsible factor, pollution affect all the population similarly, but it led to increase in the percentage of young mothers having babies with congenital anomalies, this finding need a further studies with larger sample size to prove it. at the same time babies born with Down syndrome found only among the older age mothers which is an expected result.

In this study pregnancy among old mothers were mainly associated with higher rates of postpartum hemorrhage (13.5%), such event was not reported among young mothers which may due to the fact that old mothers are mainly multigravid a fact which is associated with weakness of uterine musculature along with increased rates for CS among this category, these findings were in agreement with what had been found by other study⁽¹⁸⁾.

Old age mothers were having higher rate for preeclampsia (PE) and this occur because PE is a hypertensive disorder associated with elevated blood pressure that was increased in old age mothers, also in old mothers there were high rates for eclampsia (5.4%) compared to (0%) in young mothers it was mainly due to poor attendance to antenatal care unit in old mothers, which is proved to be effective in preventing and management of these complications , these was in agreement to what had been found by others (21, 16).

In this study young mothers appeared to have high rates of antepartum hemorrhage (75%) and this was in contrary to what was found by other studies^(14, 20) this may be attributed to the fact that young mothers still having poor attendance for antenatal care unit.

Acknowledgement: The author would like to give his great thanks to the students of the 4th year Medical College-Al-Nahrain University for their effort in collecting the data from the obstetric & Gynecological department in the Al-Kadhimia Teaching Hospital

From this study ,

CONCLUSION:

Mothers ≥ 35 years old showed higher rate of obstetric complication than young age group of mothers, while congenital anomalies were higher but not significant among young age group of mothers (≤ 30 years old). More studies with larger sample size are required to confirm the result reached in this study, especially the one concern with the higher frequency of babies born with congenital anomalies among young mothers

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