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Advanced Maternal Age & Adverse Fetomaternal Outcome: A Retrospective Study

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Abstract: ***Introduction*: Advanced maternal age is defined as age 35 years or more at the time of conception is considered to have higher incidence of adverse fetomaternal outcome than younger women. *Materials and Methods*: It is a retrospective study carried out in KIMS Medical College &PBMH, Bhubaneswar, Odisha, India over a period of 1 year from August 2016 to July 2017. The women delivered during this period were divided into 2 groups. Women who conceived at 35 years and above were taken as study groups and those between 20 to 34 years were taken as control groups. Multifetal pregnancies were excluded from the study which have got their own complications and may confound the result. Selected maternal and perinatal factors and outcomes were taken and analyzed. *Result*: The mean age of the study group was 36.8 and control group was 26.7. The incidence of medical disorders like hypertension, diabetes mellitus, hypothyroidism & obstetric disorders like APH, oligohydramnious, IUGR, breech presentation were increased. There was an increased incidence of fibroids complicating the pregnancies. So also there is an increased incidence of caesarean deliveries, still births and NICU admissions. In all the above cases p-values were significant and below 0.05. *Conclusion*: The study analyzed the effect of advanced maternal age on maternal and fetal outcome has shown a significant rise in the incidence of adverse outcomes. The importance of the study lies in that these women should be counseled and put under close surveillance in order to improve the outcome***

Keywords: Advanced maternal age, adverse fetomaternal outcome

1. Introduction

During the last decade, the world is witnessing a rising trend in pregnancy in a later age either due to delayed marriage and delayed child bearing as a result of passion for higher education and financial independence or due to a good spacing between pregnancies for a happy family which is possible because of availability of a wide range of safe, efficient and easily accessible contraceptives. Another important contributor to late age pregnancy is increasing rates of remarriages following divorces.

Aim of the study is to compare the obstetric and perinatal outcomes of pregnancies of advanced age mothers and younger mothers.

2. Materials and Methods

This is a retrospective study done over a period of 1 year from August 2016 to July 2017 in KIMS Medical College & PBMH, Bhubanwsar, Odisha. Women delivered during this period who were pregnant at 35 years and above were taken as study group and those between 20-34 years were taken as control group. Women who delivered multiple fetuses were excluded from the study as problems inherent to multiple gestation would confound the results.

The no. of women in the study group – 75
The no. of women in the control group-1295

The maternal parameters which were taken into consideration and compared were parity, presentation of the fetus , medical disorders associated with pregnancy like anaemia , hypertension, diabetes mellitus and hypothyroidism , mode of delivery as normal vaginal delivery or caesarean section including primary sections and repeat sections.

The fetal parameters compared were birth weight, fetal growth retardation, birth outcomes(live births and still births) and NICU admissions.

Hypertension in women is either chronic hypertension i.e present before conception/before 20 weeks of gestation or pregnancy induced hypertension (PIH) which develops after 20 weeks of gestation with protienuria i.e preeclampsia , without proteinuria i.e gestational hypertension. Eclamsia is preeclampsia with coma or convulsion.

Women classified as diabetic may be having pre existing diabetes mellitus or diabetes of new onset during the pregnancy i.e. gestational diabetes mellitus (GDM).

Antepartum haemorrhage(APH) was defined as any vaginal bleeding after 28 weeks of gestation and before the delivery of the baby.

Mode of delivery was categorized as normal vaginal deliveries or caesarean section deliveries and the caesarean section may be of primary section or repeat section.

Fetal growth restriction was defined as birth weight<10^{th} percentile for the gestational age and macrosomia was >90^{th} percentile.

Oligohydramnious was defined as amniotic fluid index(AFI) <5 cm. IUFD was defined as death of fetus in the uterus after 28 weeks of gestation. Still births include IUFD and fresh still born babies.

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The data analysis was done using statistical analysis system(SAS) statistical package. The Chi-square and Fisher's exact tests were employed to calculate the p-values. p-value <0.05 is taken as statistically significant.

RESULTS: In this study the mean age of the study group was 36.8 and control group was 26.7. In the study group out of 75 women, 12 women(16%) were primiparous, 63(84%) were multiparous where as in the control group 650(50.19%) women out of 1295 were primiparous and 645(49.81%) were multiparous. The above data was given in Table 1.

Table 2 shows the comparison of antepartum complications between study group and control group. In the study group 17 women were diabetic. Out of 17 women 15 were having GDM and 2 were having preexisting diabetes mellitus. In the control group 24 women were diabetic out of which 20 were having GDM. p-value <0.001 which was significant.

Similarly there were 24 cases of hypertension amongst which 20(26.6%) cases are of PIH in the study group and 30 cases(2.31%) in the control group.
p-value was <0.001 and it was significant. So out of 20 cases of PIH in the study group 3 cases were cases of eclampsia and out of 30 cases in control group 4 were cases of eclampsia .

The incidence of anaemia in both the groups were very very low.

There was increased incidence of hypothyroidism in the study group i.e.8 % in contrast to 1.93% in the control group. p-value was 0.001 and was significant.

All the cases of APH in our study were having placenta previa , not a single case of abruption detected in our study. There were 5.33% cases of APH in the study group and 0.77% cases in the control group .p-value was 0.005 and was significant.

13.33% of the study group were having oligohydramnious in contrast to 1.15% in the control group and the p value was significant i.e. <0.001

The study group have 6.66% cases of breech presentation in opposition to 0.77% cases in the control group and the p-value was significant.(p- value<0.001)

There were 13 cases of fibroids complicating pregnancy in our study, out of which 8 were in the control group and here the p-value was significant i.e.<0.001

Table 3 shows the mode of delivery in 2 groups. Study group had increased no. of caesarean deliveries than vaginal deliveries where as control group had increased no. of vaginal deliveries than caesarean deliveries. In the study group amongst 58.67% caesarean sections, 32% were primary sections and 26% were repeat sections whereas in the control group amongst caesarean deliveries 17.06% were primary sections and 27.25% were repeat sections.The percentage of primary c.s. were more in the study group in comparison to control group and the p-value was significant i.e 0.001 .

Table 4 shows the comparison of fetal outcomes in both the groups. The average gestational age at the time of delivery was 38 weeks in the study group and 39 weeks in the control group. The average birth weight was 2.6 and 2.9kg respectively in two groups.

In the study group there were 20% cases of IUGR babies and in the control group it was2.31% .The p-value was significant i.e <0.001.There was not a single case of macrosomic baby.

There was an increased no. of cases of still births in the study group (4%)in contrast to 0.77% cases in the control group . p-value was 0.03 and was significant. All the still births were due to intrauterine deaths.

NICU admissions were more in the study group i.e. 10.33% than the control group i.e. 1.93% this was significant as p-value was <0.001.

Table 1: Distribution of mean age and parity in both the groups
Cases n=75, control n=1295

Mean Age	36	26.7
Primiparous	12 16%	650 50.19%
Multiparous	63 84%	645 49.81%

Table 2: Comparison of maternal age and antepartum complications

Variables	Study group n=75	Control group n=1295	p-value
GDM	15 20%	20 1.54%	<0.001
PIH	20 26.66%	30 2.31%	<0.001
Hypothyroidism	6 8%	25 1.93%	<0.001
APH	4 5.33%	10 0.77%	<0.005
Oligohydramnious	10 13.33%	15 1.15%	<0.001
Breech presentation	5 6.66%	10 0.77%	<0.001
Fibroids complicating pregnancy	8 10.66%	5 0.38%	<0.001

Table 3: Comparison of modes of deliveries

Variables	*Study group n=75*	*Control group n=1295*	*p-value*
Normal vaginal deliveries	31 41.33%	721 55.67%	
Ceasarean deliveries	44 58.67%	574 44.33%	
Primary c.s	24 32%	221 17.06%	0.001
Repeat c.s	20 26.67%	353 27.25%	

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Table 4: Comparison of maternal age and fetal outcome

Variables	*Study group n=75*	*Control group n=1295*	*p-value*
Avg. gestational age	38 wks	39 wks	
Avg. birth weight	2.6 kg	2.9 kg	
IUGR	15 20%	30 2.31%	<0.001
Still birth	3 4%	10 0.77%	0.03
NICU admission	10 13.33%	25 1.93%	<0.001

3. Discussion

There are a no. of studies carried out to assess the fetomaternal complications with the increasing maternal age. This study revealed women aged 35 years and above had significantly higher incidence of hypertensive disorders.This is similar to that reported by Liux et al. and Khalewad PS et al.This is explained by the fact that there is an impairment in maternal circulatory adaptations like high flow , low resistance and decrease in mean blood pressure with the progression of pregnancy.

There is an increased incidence of diabetes mellitus specially GDM in advanced age mothers .This is consistent with a large study carried out at University of Eastern Finland by Ruta Lamminpaa and published on 20th March 2015 by Diabetes Research & Welness Foundation .It also agrees with the study of Carolon M et el.

We found an increased incidence of hypothyroidism in advanced age mothers.The possible reason might be an increased incidence of autoimmune thyroiditis with advanced age .

Vascular dysfunction is again said to be the cause for placenta previa whose incidence increases with age which was opined from a no. of studies like those of Bianco et al. , Gilbert et al. , Chan et al. ,Cleary-Goldman et al. Our study also revealed that.

There is an increased incidence of oligohydramnious in advanced age mothers in our study. Again the possible cause is vascular dysfunction with ageing .This was also reported by Khalewad PS et al. in 2016 and Antsaklis A.et al. in January 2013.

As the age advances there is a rise in the incidence of fibroids in the uterus. So more no. of advanced age mothers seen with fibroids complicating Pregnancy. This study also revealed that.

Malpresentation is common advanced age mothers due to poor abdominal tone and fibroids followed by placenta previa.In this study the incidence of breech presentation was higher advanced age women than younger women.
This is similar to that reported by Viegas et al. , Gilbert et al. , Hoque,Giri A. et al.

There is no big difference in gestational age at delivery and APGAR scores between two groups but there was an increased incidence of I.U.G.R. babies

In this study which is similar to those reported by Odibo AO et al. , Li-Chun Liu et al. , Khalewad PS et al. .The still birth percentage was significantly higher in the older women .This was due to increased incidence of medical and obstetrical conditions complicating the pregnancy. This is reported by a large study done by I Jan Hu. There was also an increased no. of NICU admissions in older women like that of Bahtiyar et al. , Jacobson et al. and particularly a large study done by I-Jan Hu.

4. Conclusion

In today's world a women dreams of higher education, financial independence and social respect. She should be encouraged to achieve these goals. After achieving these goals she wants to rejoice her womanhood. Because of increased possibility of adverse fetomaternal outcomes she should never be discouraged to be pregnant in a later age. What she needs is a careful antenatal, natal and post natal management in a multidisciplinary tertiary care hospital for better outcome.

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