Volume : 5 | Issue : 7 | July 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

Original Research Paper

Maternal and Perinatal Outcome of Pregnancy Over The Age Of 35 Years

Medical Science

KEYWORDS : Advanced maternal age, Risk , Obstetric outcome

*** Dr. Subha Sivagami Sengodan** — Associate Professor, Department of Obstetrics and Gynaecology, Govt. Thoothukudi medical college hospital, Thoothukudi, 628003, Tamilnadu
* Corresponding Author

Dr. Mohana Dhanapal — Associate Professor, Department of Obstetrics and Gynaecology, Govt. Thoothukudi medical college hospital, Thoothukudi, 628003, Tamilnadu

Dr. Vijaya Subramanian — Professor, Department of Obstetrics and Gynaecology, Govt. Kasthuriba Gandhi Hospital & ISO, Tamilnadu.

ABSTRACT

Advanced maternal age is a risk factor and not a causative one for adverse maternal and perinatal outcomes. The objective of this study is to analyze maternal and perinatal outcome of pregnancy in woman above 35 years .This is a cross sectional study based on patients who got admitted in the labour ward complex in Government Kasthuriba Gandhi Hospital & ISO, Triplicane, Chennai-5 till the time of delivery from Jan 2013 to Dec 2013. There were 250 booked patients aged 35 years and above at the time of study (study group) and compared their maternal and perinatal outcomes with those of women 20 to 34 years age group (control group n-250). Educated and professional women prefer late marriages and delayed child bearing. There is definitely significant increase in the incidence of age related medical complications like diabetes mellitus, systemic hypertension and pregnancy associated complications like gestational diabetes mellitus, and pregnancy induced hypertension, anaemia, placenta praevia, abruptio placenta and early and late pregnancy losses in the study group. Many patients in study group have fertility issues and labour dysfunctions. In view of more of age related and pregnancy associated complications in study group, a good knowledge of risks involved in pregnancies above 35 years will enable the obstetrician to carry out the appropriate management modalities to improve the outcome of pregnancy.

INTRODUCTION

Obstetrics is a wonderful art of caring for two lives, the expectant mother and her baby in the womb. Advanced maternal age is a risk and not the causative factor of adverse maternal and perinatal outcome.

"Elderly" or "mature" pregnant women are traditionally said to have higher incidence of obstetric complications and adverse pregnancy outcomes than younger pregnant women [13-15]. Many studies have found adverse effects in the form of preterm delivery [8,14], low birth weight, prenatal mortality and morbidity[10] and increased prevalence of medical disorders like hypertension[9], gestational diabetes mellitus and placenta praevia[11,12] and aneuploidy leading to recurrent miscarriages, spontaneous abortion[19] and gynaec issues like leiomyoma and adenomyosis are increasing in this age group. Modern infertility treatment methods, including oocyte donation increase the number of women becoming pregnant in advanced ages [27-29]. Apart from obstetric and medical complications, the psychological aspects of this age group are not so complaint and not strictly adherent to the medical advices unlike the younger age group.

Majority of these studies are from developed countries and from western population. There is hardly any documented study from India, where relatively poor socioeconomic status, culture practice of early marriage and concept of large family size predominate. By educating and giving awareness about the pregnancy outcomes of advanced maternal age, we can help them to plan their pregnancy earlier. In community services and health education programs the issue of advanced maternal age in relation to obstetric and perinatal outcome can be highlighted.

AIMS AND OBJECTIVES

Aim of this study is

To analyze the maternal and perinatal outcome of pregnancy in women above 35 years at Goverment KGH and ISO, Triplicane, Chennai-5

To compare with maternal and perinatal outcome of pregnancy in women of 20-34 years age group.

MATERIALS AND METHODS

This is a cross sectional study based on patients who got admitted in the labour ward complex in Goverment KGH and ISO, Triplicane, Chennai-5 till the time of delivery from Jan 2013 to Dec 2013. There were 250 booked patients aged 35 years and above at the time of study (study group) and compared their maternal and perinatal outcomes with those of women 20 to 34 years age group (control group n-250). The control group is selected by simple random selection in the study period. The sample size is taken on convenience basis.

Study design:

Cross sectional study from Jan 2013 to Dec 2013.

Exclusion criteria:

Unbooked patients at the time of delivery

Multiple pregnancy.

Patients with associated connective tissue disorders like SLE.

Patients with chronic infectious diseases like hepatitis B and C and HIV& Chronic pyelonephritis.

Exclusion criteria are determined in such a way to reduce potential confounding bias.

Study population

Of the 3486 pregnant women booked at our hospital, study group(Group I) comprises of 250 pregnant women aged 35 years and above, compared with equal number of patients of 20-34 years age group(Group II) admitted in labour ward complex till the time of delivery.

Sample size and sample technique

Comparing the obstetric and perinatal outcome of 250 pa-

Volume : 5 | Issue : 7 | July 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

tients above 35 years of age with 250 patients in 20-34 years age group (control group n-250).

Sample technique
Simple random sampling. This is a cross sectional study. Patients above 35 years admitted in labour ward complex are compared with randomly selected patients in 20-34 years of age group.

Data collection techniques and tools:
The major maternal parameters studied were gestational age, obstetric complications like GDM, Anaemia ,PIH, Preterm labour, Placenta praevia, Abruptio placenta, Bad Obstetric History, H/o fibroid complicating pregnancy, recurrent miscarriages and medical disorders like overt diabetes complicating pregnancy, systemic hypertension, caesaran delivery rate and perinatal outcome like IUGR.

Data Analysis:
The information collected regarding all the selected cases was recorded and data analysis was done with the help of computer using epidemiological information package (EPI-2010). Using this software range, frequencies, percentages, means, standard deviations, chi square and p values were calculated by one way ANOVA and t test. Kruskul wallis chi square was used to test the significance of difference between quantitative variables. P value of <0.05 is taken to denote significant relationship.

RESULTS
Incidence of pregnancy in women aged 35and above was 7.17%. Our study showed significant duration of infertility associated with advanced maternal age (Table-1) and significant increase in the risk of miscarriage in our study (25.2% v/s 8.4%) (Table-2).Hypertension both chronic and pregnancy induced hypertension are more in study group as compared to control (Table-3). Among the antenatal complications GDM complicating pregnancy is the most common complication (22.4% Vs 18%). Overt diabetes mellitus has significant association with maternal age. Majority of patients in both groups deliver at term but there is a definite increase in the incidence of preterm delivery in group I when compared to group II (37.4% v/s 25.3%) (Table-4). In our study there is an increase in incidence of low birth weight babies when compared to control group.

DISCUSSION
Pregnancy is a normal physiological phenomenon, yet an exquisite period in women's life. Pregnancy is considered as high-risk if the possibility of an adverse outcome is higher than in the general population [25]. A high risk pregnancy is associated with increased risk of maternal and fetal morbidity and mortality [26].

The period of study was from Jan 2013- Dec 2013. Total No. of pregnancies were 3486.No. of pregnancies >35 years were 250. Incidence >35 years was 7.17%.

Duration of Infertility
Age alone has effect on fertility [19]. Fertility declines with advancing age of the mother due to oocyte depletion [16-18]. In our study, there is a significant history of infertility in the study group.

Table-1

No.of years of Infertility	Group I		Group II		Total	
	No.of cases	%	No.of cases	%	No.of cases	%
No Infertility	152	60.8	235	94	387	77.4
<5 years	60	24	12	4.8	72	14.4
6-10 years	38	15.2	3	1.2	41	8.2

Abortion
The following table figures out the incidence of early pregnancy loss (miscarriages) in our study.

Table-2

Abortion	Group I		Group II		Total	
	No. of cases	%	No. of cases	%	No. of cases	%
Nil	187	74.8	229	91.6	416	83.2
1	38	15.2	13	5.2	51	10.2
2	20	8	6	2.4	26	5.2
3	2	0.8	2	0.8	4	0.8
>4	3	1.2	0	0	3	0.6

P value- <0.001 significant

There is a significant increase in the risk of miscarriage with advancing age due to aneuploidy and spontaneous abortion [19]. The incidence of spontaneous abortion in our study is about 25.2% in group I and 8.4% in group II which is statistically significant. Most of the miscarriages were missed abortion (blighted ovum) followed by incomplete abortion.

The ACOG (JANUARY 2007 issued practice bulletin #77) all pregnant women regardless of their age offered less invasive screening for Down's syndrome and screening should occur before 20th week of pregnancy.

Antenatal Complications
Most common antenatal complications in the patients were

Table-3

Variant	Group I	Group II	Total	P value	Chi square
GDM	56	45	101	0.374	0.791
Anaemia	10	6	16	0.465	0.534
PIH	10	4	14	0.190	1.718
Placenta Praevia	6	2	8	0.295	1.096
Abruption	10	3	13	0.102	2.676
BOH	6	4	10	0.759	0.094
Fibroid	3	2	5	0.996	0.0002
Heart disease	4	1	5	0.376	0.784
Hypothyroid	2	4	6	0.6888	0.161
SHT	5	0	5	0.076	3.153
Overt DM	6	0	6	0.043	4.098

Among the antenatal complications GDM complicating pregnancy is the most common complication (22.4% Vs 18%). Overt diabetes mellitus has significant association with maternal age .Diabetes is significantly present in the study group. This is similar to the Indian study done at KG medical university, Lucknow which also showed significant association of diabetes mellitus with advancing maternal age. Many western studies have also proven increased incidence of diabetes mellitus in advanced maternal age [11, 12].

Pregestational DM and systemic hypertension are seen only in advanced age pregnancies since these are age related complications. This is mainly due to high BMI and obesity

leading to insulin resistance and lowering trend of function of beta cells of pancreas. The usual fall in BP to low resistance high volume in pregnancy does not occur in advanced maternal age.

Placenta praevia occurs more commonly with advancing age and increasing parity (2.4%) & age associated endometrial damage & previous scarred uterus. The incidence of abruption is(4%) due to associated high BP and uterine blood vessels aging. The fibroids occurs in about 1.2% of pregnancies in Group I, this was diagnosed mostly as an intra operative finding.

Hypertension both chronic and pregnancy induced hypertension are more in study group as compared to control but statistically insignificant. The same findings were reported by Goldman et al [11] Bobrowski et al[12] reported the rate of preeclampsia in multiparous women more than 35 years old is 3 times more compared to younger counterparts. Documented in literature that progressive vascular endothelial damage occurs secondary to advanced maternal age [11]. Similarly the rate of chronic hypertension is more in advanced maternal age [12].

Time of Delivery
Table-4

Category	Group I		Group II		Total	
	No. of cases	%	No. of cases	%	No. of cases	%
Preterm(<37wks)	70	37.44	58	25.33	128	30.8
Term(37-40wks)	115	61.50	168	73.36	283	68
Post Dated(>40wks)	2	1.06	3	1.31	5	1.2

The majority of patients in both groups deliver at term but there is a definite increase in the incidence of preterm delivery (37.4%) in group I when compared to (25.3%) in group II. Several studies have reported increased incidence of preterm delivery with advanced maternal age [8, 14].

Dysfunction of labour
With increasing maternal age, the duration of first and second stage of labour and need for oxytocin augmentation [24] is increased.

Mode of delivery
Table-5

Mode of delivery	Group I		Group II		Total	
	No.of cases	%	No.of cases	%	No.of cases	%
LSCS	94	50.4	86	37.6	180	43.2
LN with episiotomy	44	23.6	55	24	99	23.8
LN	43	23	73	31.8	116	29
Instruments	6	3.2	15	6.6	21	5

There is an increase in the incidence of caesarean delivery in group I (50.4% Vs 37.6%). This is closer to that of studzinki (40% Vs 19%)[6]. In a study by Hoque et al with 341 advanced maternal age women, the rate of caesarean delivery was 38.4% [31]. In a meta analysis by Smith et al with 297,842 women in 2012, the rate of caesarean delivery was 25.7% in women above 35 years of age [30].

Perinatal Outcome
In our study there is an increase in incidence of low birth weight babies when compared to control group. The mean birth weight in study group-I was 2.364 +1.208 kgs, the mean birth weight in control group-II was2.576 +1.115 kgs. More babies in study group-I got admitted in NICU for preterm care, hyperbilirubinemia and sugar monitoring due to low birth weight. In a retrospective study by Hoque et al, a statistically significant correlation was found between advanced maternal age and low birth weight as a result of diabetes, preeclampsia and placenta praevia[31]

LEE KS et al stated that advancing maternal age is associated with decreased potential for fetal growth reflecting the biological ageing of maternal tissues and systems or cumulative effects of diseases [9].

CONCLUSION
The scientific era offers new oppurtunities to women equivalent to men thereby compromising their family life to a certain extent. In the present study analyzing socioeconomic and demographic characteristics most women in study group are well educated women delaying the pregnancy for career oppurtunities. Advanced maternal age showed higher rate of obstetric complications than younger age group of mothers like significant association with increased duration of infertility and recurrent miscarriages. Once the hurdles of infertility and recurrent fetal loss are crossed it needs vigilant monitoring and watchful expectancy of complications. Despite the increased risks related to advanced maternal age the risks are manageable and positive outcomes can be expected [25]. The following recommendations are to be followed.

Recommendations:
Preconceptional and genetic counseling.

Periconceptional folic acid to be started.

First and second trimester aneuploidy screen is to be done and if needed invasive tests to be done.

Anomaly USG with Doppler of bilateral uterine arteries.

GTT early and to be redone at 24-28 weeks.

Fetal growth monitoring to be done.

References:

1. Curr opin obstet gynecol. 2007 April; 19 (2); 110-2 Montan S Increased risk in Elderly Parturient.
2. Jcoll Physicians Surg Park. 2004 May; 14(5); 278-81 Obstetrical risks in the older primigravida Nagvi MM, Naseem A.
3. 11East Afr MED J. 2002 Jan; 79(1); 34-7 Pregnancy outcome in the elderly gravid in Addis Ababa Martai W(1), Lakew Z.[Pubmed]
4. Nybo Anderson AM, Wohlfahrt J, Christens P et al; Maternal Age and Fetal Loss; Population based Register linkage study. BMJ 2000; 320; 1708-1712.
5. DE la Rochebrochard E Thonneau P; Paternal age and maternal age are risk factors for miscarriage; Results of a multicenter European study Hum. Reprod 2002; 17; 1649-1656.
6. Wiad Lek.2004; 57(3-4); 140-4. Pregnancy and delivery in women over 40 year old- Studzinski Z.
7. J Biosoc Sci. 2006 Jul; 38(4); 523-35 Impact of maternal age on birth outcomes; a population based study of primiparous Brazilian women in the city of Sao Paulo- Machado CJ.
8. Berkowitz GS, Skorran Ml, PH Lapniski RH et al delayed child bearing and the outcome of pregnancy N- Eng J Med 1990; 322: 659-64.
9. Lee KS Ferguson RM, corpus m et al, maternal age and incidence of low birth weight at term a population study. AMJ obstet gynecol 1988; 158-84-9.
10. Fretts RC. Schmittdiel J, Mc. Lean fit et al. increased maternal age and the risk of fetal death. N. engl J Med 1995; 333: 953-7.
11. Cleary Goldman J, Malone F D, Vidaver J et al. impact of maternal age

Volume : 5 | Issue : 7 | July 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

on obstetric outcome obstet gynecol 2005; 105(5 part 1): 983-90.[PubMed]
12. Bobrowski RA, Bottoms SF, underappreciated risks of elderly multipara. AM J obstet gynecol 1995; 172: 1764-70 .
13. Nelson- piercy C, Michae de swiet, Gwyneth Lewis, Medical deaths in pregnancy. Clinical medicine 2005; 8(1): 11-12.
14. Shehedeh A elderly primigravida and pregnancy outcome JRMS 2002; 9(2): 8-11.
15. Drife J. why mothers die. JR coll physicians' edin 2005; 35: 332-336.
16. Faddy MJ, Gosden RG Gougeona, Richadson SJ, Nelson JF, Accelerated disappearance of ovarian follicles in midlife, implications foe forecasting menopause. Hum reprod 1992; 7:1342-6.
17. Baker TG A Qunatitative and cytological study of germ cells in human ovaries. Proc r soc lond b biol Sci 1963; 158: 417-33.
18. Block E Quantitative morphological investigation of the follicular system in woman, variations at different ages. Act a ant (Basel) 1952; 14: 108-23.
19. American congress of obstet & Gynecol (ACOG) committee opion No. 589. Issue of fertility and sterility March 2014.
20. BHS open 2011: 1: e 000226 doi: 10.1136 Global health research.
21. Sahu T meenakshi, Agarwal Anjoo, Das Vinita advanced maternal age and obstetric outcome J obstet Gynecol India 2007; Vo. 57 No.4.
22. Giri A et al Advanced maternal age and obstetric outcome Nepal Med Coll J. 2013 Jun; 15(2): 87-90.
23. S.N. Beemester boer, R. Homburg, N.A Gortec R Schatis PGA Hompes and CB Lamback. Human Reproduction in advance access published Feb. 23, 2006.
24. Denise M Main, MD, Elliot K. main Dan H More II .the relationship between maternal age and uterine dysfunction a continuous effect throughout reproductive life AMJ obstet Gynecol 2000; 182: 1312-26.
25. Altman DG. Practical statistics for Medical Research. London: Chapman and Hall; 1994; Pp.229-276.
26. Yesiltepe OU, Coskun A. Effectiveness of Comprehensive Nursing Care Relieving Problems of High-Risk Pregnant Women in Bed Rest. TAF Prev Med Bull. 2012; 11(2): 163-172.
27. Sauer MV, Paulson RJ, Lobo RA. Pregnancy in women 50 or more years of age: outcomes of 22 consecutively established pregnancies from oocyte donation. Fertil Steril. 1995; 64(1): 111-115. [PubMed].
28. Sauer MV, Paulson RJ, Lobo RA. Pregnancy after age 50: application to women after natural menopause. Lancet. 1993; 341 (8841): 321-323. Doi: 10.1016/0140-6736(93)90132-Z. [PubMed].
29. Cetinkaya MB, Siano LJ, Benadiva C, Sakkas D, Patrizio P. Reproductive outcome of women 43 years and beyond undergoing ART treatment with their own oocytes in two Connecticut university programs. J Assist Reprod Genet. 2013; 30(5): 673-678. Doi: 10.1007/s10815-013-9981-5. [PubMed]
30. Smit F, Wijk HV, Gouw C, Duvekot H. Relationship between Advanced Maternal Age and The Mode of Delivery. A systematic review. Erasmus J Med. 2012; 3(1): 34-38.
31. Hoque ME. Advanced Maternal age and outcomes of Pregnancy: A retrospective study from South Africa. Biomedical Research. 2012; 23(2): 281-285.