

OUTCOME OF GRAND MULTI-GRAVIDITY & MULTI-PARITY A RETROSPECTIVE STUDY

AKTHER R

Abstract

Objective: To examine the obstetric outcome in grand multi-parous and the effect of high parity among young women, aged 18-34 years vs. older women, aged 35 years and above.

Methods: This is a retrospective study done in DMCH from 1st August 2007 to 31st August 2008. For study purpose 98 patients were selected randomly whose gravidity 6th and more. To see peri-natal outcome, the cut-off point of 28 weeks was taken.

Results: Mean age of the study group was 32(22-45) years. Mean gravidity and parity of the study group was 6.7 (6-11) and 4(1-8) respectively. Ninety percent pregnancy affected by different complications. Hypertensive disorder of pregnancy (14.3%) and ante-partum hemorrhage (14.3%) was more common. Bad obstetric history (12.35%), mal-presentation (11.23%) and intra-partum complications were also common. Twenty two percent (22.46%) pregnancies complicated by gestational diabetes, maternal medical disease and multi-fetal gestation. Regarding fetal outcome, peri-natal loss was 10(14%). Preterm delivery, ante partum hemorrhage, bad obstetric history, gestational diabetes and mal presentation were the cause of peri natal loss. Lack of reproductive knowledge, unmet need for contraception, poor obstetric performance and too early marriage are the main cause of grand multi-gravidity and multi-parity

Conclusion: Diabetes mellitus, hypertension, ante partum hemorrhage, mal-presentation was more common in grand multi-parous irrespective of age. There was no significant difference in the incidence of obstetric complications and in perinatal outcome among both groups.

Keywords: Grand Multi-parity, Obstetric complication, peri-natal outcome.

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Introduction:

Grand multi-parity (GMP) has long been considered an obstetric complication for both mother and fetus, although recent studies indicate that, with proper peri-natal care, women with high-parity rates are no longer at high risk. The term grand multipara was introduced in 1934 by Solomons, who called the grand multipara the dangerous multipara¹. Since then, many studies have explored the relationship between grand multiparity and obstetric complications, and the results of these studies have been mixed. Grand multiparity is usually considered as a cause of increased morbidity and mortality for mother and fetus as a result of increased incidence of adverse events during pregnancy, labor and delivery¹⁻³.

A grand multipara is a woman who has already delivered five or more infants, who have achieved a gestational age of 24 weeks or more, and such women are traditionally considered to be at higher risk than the average in

subsequent pregnancies. A grand multigravida has been pregnant five times or more. A great grand multipara has delivered seven or more infants beyond 24 weeks' gestation⁴.

The incidence of grand multi-gravidity has been gradually declining over the couple of decades due to acceptance of small family norm but it still constitutes to about one tenth of the hospital population and accounts for one third of the maternal deaths in the developing countries⁵. Grand multi-gravid pregnancy associated with increased incidence of complications from conception to delivery. Increasing gravidity is often associated with increasing maternal age, lower socio-economic and educational status, poor antenatal care, higher body mass index (BMI) and higher rates of gestational diabetes, placenta previa and hypertensive disease of pregnancy & anemia^{4, 5}. There is also increasing risk of abnormal fetal presentation, precipitate delivery, uterine atony, uterine rupture, Amniotic fluid

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embolism, obstetric hemorrhage, stress incontinence and urinary urgency symptoms, levator ani dysfunction⁴. Lack of reproductive knowledge, unmet need for contraception, desire for son, poor obstetric performance (Both) and too early marriage are the main cause of grand multi-gravidity and multi-parity.

DMCH is one of the largest referral hospitals in Bangladesh. In 2007 and 2008, 10242 and 15850 obstetric patients were admitted in the labor ward. Among them 182 (2%) and 142(1%) were grand multi-gravid. The current study examines the outcome of e⁶th pregnancy of 89 women and the effect of high parity among young women, aged 18-34 years vs. older women, aged 35years and above.

Methods:

This is a retrospective study done in DMCH from 1st August 2007 to 31st August 2008. Data was collected from the admission register, patient's file, OT register and report book. During this period total 15283 women were admitted in labor emergency for management of pregnancy related complications and labor. Among them 98 patients were selected randomly whose gravidity 6th and more. The definition of grand multi-parity varied from parity of four, to five and six in various studies. In this study population, *grand multi-gravidity* is defined as a woman who has already had six or more conception irrespective of duration of gestation, to see the end of gestation. To see peri-natal outcome, the cut-off point of 28 weeks was taken. The reason is the viability at this gestation is more than 75% but before 28 weeks the survival rate is poor and drops markedly to 50%⁶.

Results:

For the purpose of this study, 98 grand multi gravid women have been studied. Table 1: showed age distribution of multi-gravid women. Mean age of the study group were 32(22-45) years. Among them 37% belong to 22-30 yrs age group, then 45% women belong to 31-35 yrs age group and 14.6% belong to 36-40 yrs age group. Table 2: showed gravidity distribution of pregnant women. Mean gravidity and parity of the study group was 6.7 (6-11) and 4(1-8).Among them 55% were 6th gravid, 30% were

7th gravid, 8% women were 8th gravid and 7% were 9th-11th gravid. Table 3: showed causes of grand multi-gravidity and previous pregnancy outcome. Eighty nine percent women had 2 or more (2-8) live children. Repeated conception & continuation of pregnancy is the main cause of high gravidity and parity. Then death of children, repeated menstruation regulation and spontaneous abortion were the 2nd, 3rd & 4th common cause of high gravidity. Twenty three percent women had all live children and 10% women had no live child. Thirty two percent women had history of intrauterine death or still birth(1-5) ,30% had history of abortion(1-7),26% had history of menstruation regulation(MR) (1-4),7% had history of repeated abortion(3-7) and 8% had history of repeated MR (3 or more).Table 4 showed that 72(73.46%) pregnancy continued more than 34weeks, 14(14.30%) pregnancy continued 22-33weeks and 12(12.24%) pregnancy terminated spontaneously or induced which was progressed to septic abortion. To assess effect of age on grand multi- gravidity, the participants divided into two groups. Group A were \leq 34 years old and group B were \geq 35 years old .Table 5 showed that average age of group A were 29(22-34) years and group B were 36.83(35-45) years. More than 90% women of both group having live children and pregnancy continued to term in more than 70% cases (p-value is 0.22). Table 5 showed 78%women in group A and 59.5% women in group B gave live birth. P-value were 0.23.Intrauterine death were 8.7% among group A and 14.3% in group B (p-value is 0.479).Table 5 also showed that 19.5% in group A and 26.2% women in group B delivered vaginally, 67.4% women in group A and 52.4% women in group B delivered by cesarean section. In group B 2 (two) women died due to ruptured uterus. Birth weight in group A was 2.46(1.5-4) kg and Group B was 2.67(1-4.2) kg. Table 6 showed distribution of women affected by different complications. Ninety percent pregnancy affected by different complications. Hypertensive disorder of pregnancy and ante-partum hemorrhage were more common and 28.6% (14.3%+14.3%) women of both were affected. Bad obstetric history (12.35%), mal-presentation (11.23%) and intra-partum complications were also common. Twenty two percent (22.46%) pregnancies complicated by

gestational diabetes, maternal medical disease and multi-fetal gestation. Regarding fetal outcome, peri-natal loss were 10(14%). Preterm delivery, ante partum hemorrhage, bad obstetric history, gestational diabetes and mal presentation were the cause of peri natal loss.

Table-I*Age distribution of pregnant women*

Age range	No participants
22-30yrs	33(37%)
31-35yrs	40(45%)
36-40yrs	13(14.6%)
41-45yrs	3(3.4%)
Mean age	32(22-45) years

Table-II*Gravity distribution of participants*

Gravidity	No of participants(N=98)
Average	6.7(6-11)
6th gravid	54(55%)
7th gravid	29(30%)
8th gravid	8(8%)
9th-11th gravid	7(7%)

Table-III*Causes of repeated pregnancy and previous pregnancy outcome*

Previous pregnancy out come	No of women (N=98)
Average parity	4(1-8)
All living children(5-8)	23(23.47%)
No child	10(10%)
H/O IUD or SB(1-5 children)	32(32.65%)
H/O abortion(1-8)	30(30.61%)
H/O habitual abortion(≥ 3)	7(7.14%)
H/O menstrual regulation(1-4)	26(26.53%)
H/O repeated MR(≥ 3)	8(8.16%)

Table-IV*Duration of pregnancy*

Duration of gestation	No of women
≥ 34 weeks	72(73.46%)
22-34weeks	14(14.30%)
≤ 22 weeks	12(12.24%)

Table-V*Showed pregnancy outcome depending on maternal age.*

Variables	Group A	Group B	p-value
Age	29(22-34)yrs	36.83(35-45)yrs	—
No. of living child	42(91%)	40(95%)	NS
Gestational age	28 to ≤ 34 weeks	8(17%)	7(16.66 %)
≥ 34 to 42weeks	35(74.45%)	30(71.42%)	0.22
Abortion	≤ 22 weeks	4(8.5%)	5(12%)
Fetal outcome	Live birth	36(78%)	25(59.5%)
IUD	4(8.7%)	6(14.3%)	0.479
Continue pregnancy	3(6.5%)	6(14.3%)	—
Birth weight	2.46(1.5- 4)kg	2.67(1- 4.2)kg	
Mode of Delivery	Vaginal delivery	9(19.5%)	11(26.2%)
C- section	31(67.4%)	22(52.4%)	0.19
Maternal mortality due to Ruptured uterus	0	2	—

Table-VI
Complications affecting mother & causes of peri-natal mortality

Variables	Maternal outcome		p-value	Perinatal mortality	
	Group A	Group B		Group A	Group B
APH / Placenta previa	5(11%)	8(19%)	0.374	2	
Hypertensive of pregnancy	5(11%)	8(19%)	0.374	0	0
Mal-presentation	6(13%)	4(9.5%)	0.449	0	1
Gestational diabetes	3(6.5%)	4(9.5%)	0.633	0	2
Intra-partum complication	6(15%)	6(14.3%)	0.386	0	1
Bad obstetric history	7(13%)	4(9.5%)	0.449	0	2
Preterm delivery				1	2
Multiple pregnancy				1	1

Discussion:

Limitation of the study was that it was a retrospective study and not all the data were retrievable. This study reflected the performance of the grand multipara women in DMCH, a referral Center in the heart of Dhaka city. Most of the recent papers concluded that the outcome of grand multi-parity had tremendously improved given that they received adequate antenatal care and perinatal^{3,5}, which is similar to the findings in this study.

In UK, parity is defined as the number of times that she has given birth to a fetus with a gestational age of 24 weeks or more, regardless of whether the child was born alive or was still birth⁴. In this study only gravidity was mentioned, description of previous pregnancy were not included because of lack of information.

The current total fertility rate was 2.15%⁷. Women are commencing their reproductive life early and delivered more children. The number of children per women was 6.7 in 1975 to 2.7 births per women in 2004-2006. At present, 1% percent Bangladeshi couple needs 5 more children⁸. As fertility has fallen, the proportion of births to women of higher parities has fallen. E.g., birth order 4+ down from 30% to 19%⁹. In this study it was found that 58% women underwent repeated pregnancy loss due to repeated abortion or MR but 7% women had history of habitual abortion.

This study is a mirror image of Bangladeshi Demographic and health survey. In this study only 10% pregnancy are uncomplicated and 90% women developed different complications. It indicates the risk of high gravidity pregnancy. In this study 21% pregnancies ended in abortion and IUD. There was some increase in the peri-natal mortality rate when the mother was over 30 years of age and a sharp rise over the age of 35 years^{3,10}

Moreover, there is a tendency towards smaller families as women are more educated and career orientated where the availability of contraception makes grand multi-parity less prevalent. In Bangladesh, grand multi-parity is still common and this is probably due to various factors. The government of Bangladesh is encouraging women to decrease their family size in line with the policy to decrease the population of Bangladesh. Religious and cultural beliefs also play a role. However, grand multi-parity is associated with PPH, which is the leading cause of maternal death in Bangladesh⁹. Thirty to 40% of PPH related mortality in Bangladesh occurred in patients with parity of more than five. Therefore, grand multiparity may still be a significant risk factor in this country⁹. There were no cases of postpartum hemorrhage in the grand multiparous group similar to other reports¹¹⁻¹⁴. Routine active management of the third stage of labor in our hospital was probably responsible for this finding. However, with the improvement of maternal child health services

and socioeconomic status, the complications of yester year may not be reflected in today's modern obstetrics management of the grand multi-parous woman.

Analysis by age and parity has shown that the apparent increase in incidence in hypertension with rising parity is due to concomitant increase in age, particularly over the age of 30 years¹². There were two maternal deaths seen in group B, due to ruptured uterus. Therefore, parity itself is associated with increased risks of obstetric complications independent of age.

In this study there were 10(14%) cases of perinatal death. There was no difference in the incidence of perinatal mortality between the two study groups³. This is similar to some^{15,16} but not all studies¹⁷⁻¹⁹. Frequency of prematurity, gestational diabetes and placenta previa were responsible for intrauterine death. There were no fetal death among hypertensive mother and no cases of congenital malformation. Age and high gravidity are two major risk factors for intrauterine death.⁹⁻¹⁰

Our results indicate that good peri-natal care can ensure better results in grand multiparas, and that grand multi-parity no longer needs to be considered a high-risk obstetric category in our population. Placenta previa showed a significant increase with ascending parity in a consistent manner. It is assumed that grand multiparous women would not take advantage of antenatal care because they take pregnancy for granted and this puts them at higher risks of obstetric complications¹¹. Some of the antenatal complications associated with grand multiparity may not necessarily be of obstetric origin but are dependent on the age of the mother¹⁵⁻¹⁷ e.g. increased incidence of congenital malformation and some medical disorders such as diabetes mellitus and hypertension. Therefore, age itself is associated with increased risks of obstetric complications independent of parity.

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