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GRAND MULTIPARITY AND OBSTETRIC COMPLICATIONS:A COMPARATIVE STUDY WITH WOMEN OF LOW PARITY IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: Aim of this study was to compare obstetric complications in grand multipara and women of low parity in a government hospital of tertiary care level. **Design:** Descriptive/ Analytical **Place and Duration:** Department of Obstetrics & Gynaecology Civil Hospital karachi from 1st July 2015 till 30th December 2015 **Methods:** All women attending OPD/ emergency of CHK meeting the inclusion criteria were selected after taking an informed consent. Group I included grandmultipara of parity more than 5 and group II comprised of women of low parity (para1-3). Study variables included age, parity, gestational age, anaemia, antepartum haemorrhage, malpresentations, mode of delivery, postpartum haemorrhage, stillbirth, miscarriage and neonatal death. All information was recorded on a predesigned questionnaire. All data was entered on SPSS Version 13 for analysis. **Results:** Mean age of grandmultipara was 33.16 years and that of low parous women was 28.3 4 years. Mean parity of grandmultipara and multipara was six and 3 respectively. Mean gestational age was 38 weeks for both groups. Majority of patients were booked including 52% of grandmultipara and 62% multipara. Previous history of miscarriage was present in 38% of grandmultipara and 8 % of multipara. History of stillbirth was present in 20% of grandmultipara and 6% of multipara, while 6 % grandmultipara and 2% multipara gave history of intrauterine death. Anaemia was noted in 79% multipara and 78% of grandmultipara, the incidence being almost same in both groups. Abruptio placentae was seen more common in grandmultipara (16%) than multipara (6%). Malpresentations were present in 17% of grandmultipara and 8% of multipara. Majority of patients in both groups delivered vaginally. Caesarean section rate was 4 % in grandmultipara and 22 % in multipara but instrumental delivery was more common in grandmultipara (18 % Vs 4 %). Neonatal death occurred significantly more (22%) in grandmultipara than multipara (2%). **Conclusion:** Grand multiparity results in increased risk of adverse maternal and perinatal outcome.

Key Words: Grand multipara (GMP) – Multipara (MP)-Antepartum Haemorrhage-Postpartum Haemorrhage- Neonatal Death

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INTRODUCTION

Grand multiparity has been considered an independent risk factor for increasing adverse outcome for fetus and mother, specially diabetes mellitus, antepartum haemorrhage, malpresentations, cesarean section rate, postpartum haemorrhage, iron deficiency anaemia, and a high perinatal mortality rate. The relationship between parity and pregnancy complications continues to be of interest for most obstetricians. Parity has been used as a risk marker with nulliparous and grand multiparous women classified as high risk population for pregnancy complications [(1)]. There is no universally accepted definition for grand multiparity. The term "grand multipara" was introduced in 1934 by Solomon, who called grand multipara the "the dangerous multipara". WHO classifies women having six previous deliveries after 24 weeks gestation as grand multipara, whereas international federation of gynaecologist and obstetrician (FIGO) defines five or more deliveries as grand multiparity. The terms great grand multipara and extreme grand multipara have also been used to describe ten or more and 18-20 pregnancies respectively. Women of low parity are defined as those having 1-3 deliveries [(2)]. The prevalence of grand multiparity is very low in developed countries(3-4% of deliveries) as a result of increasing awareness of associated health problems, health promotion and effective methods of contraception, but in most of developing countries like Pakistan grand multiparity is still seen quite oftenly [(3 ,4)]. Population in our country has now crossed 160 millions and fertility rate is 5-6 children per women [(5)].

Grand multiparity is particularly common in low income group and those marrying at an early age. Other factors which influence the occurrence of grand multiparity in our society include social and cultural factors often intermingled with religious factors [(6)]. The risk to mother and child is relatively high in first pregnancy and then the risk declines during second and third pregnancy, but again rises slowly with increasing parity. By the 6th pregnancy the risk exceeds those of first pregnancy and after that it rises steeply with each subsequent pregnancy[(7)].Grand multiparity is likely to be associated with complications during pregnancy, labour and postpartum which should alert obstetrician to provide extra care to these patients [(8)].

Anaemia is one of most common problem associated with multiparity. These women do not get enough time to recover the haemoglobin level to normal as the interval between successive pregnancies is short. They also lactate numerous children at the expense of their own nutrition [(9, 10)]. However, there is conflicting evidence on occurrence of anaemia. There are reports showing increase incidence and other study showed no difference and even some studies showing decreased risk. The risk of miscarriages is also high in grand multipara [(11)]. The grand multipara are usually older than 30 years, therefore medical disorders i.e., diabetes, hypertension, cardiac and renal disease are also common in these women [(12)]. Uterine laxity in multiparity results in malpresentations and malpositions [(13)]. If un recognized these may end up in obstructed labour. Each successive pregnancy results in increasing weight of baby which may consequently result in cephalo pelvic disproportion. Increasing inclination of pelvic brim and occasional forward subluxation of sacrum upon sacro-iliac joint reduces true conjugate which may result in cephalo-pelvic disproportion, therefore pelvic assessment is also important in grand multipara [(14)]. Uterine atonicity after delivery leads to postpartum haemorrhage in grand multipara often aggravated by pre existing anaemia in majority of women .Advanced maternal age of grand multipara has been reported to be an independent risk factor of gestational DM, ante-partum haemorrhage, fetal distress, prematurity, low birth weight, perinatal mortality and chromosomal abnormalities particularly Down Syndrome. In this regard, consideration of the confounding effect of advanced age of the grand multipara is pivotal when analyzing the maternal and neonatal outcome of grandmultiparity. In the absence of clear and consistent evidence of the association of grandmultiparity with adverse pregnancy outcomes, classifying grand multipara as a high-risk group could increase the cost burden to families and health systems as well as physical and psychological stress to the mother and family. The present study intended to know the association of obstetric complication with grand multiparity and to compare it with women of low parity. We wished to estimate and compare the specified maternal and perinatal complications among grand multipara and women of low parity delivered at civil hospital Karachi and identify their associated risk factors for poor maternal and perinatal outcome and convey it to community which might influence and create awareness in our local population regarding complications of grandmultiparity.

METHODOLOGY

This prospective research of comparing the outcome

of the grandmultipara women with that of the women of low parity was conducted in one of the tertiary health care centres and teaching hospital, civil hospital Karachi which provides services to low income group. The study was conducted from 1st July2015 to 31st December 2015. The sample comprised of 100 grand multipara women, GMP (group I) and 100 less parous women MP (group II) who were admitted to the maternity unit. The samples were selected by adopting a convenient sampling technique and after setting pre-determined criteria. Grand multipara were defined as women who were delivering after the 28th week of gestation after five or more previous viable pregnancies and women of low parity or Multipara were defined as women who had 1-3 previous viable pregnancies delivering after 28 weeks. Those coming with 3rd stage complications were also included. Primigravida, twins, women with known medical disorders and those > 40 years old were excluded from study.

On admission an informed consent was taken from all women included in the study. Detailed gynaecological and obstetric history was taken. Gestational age in weeks was calculated by last menstrual period, an early scan and/or by measuring sympysio-fundal height (SFH). Detailed general physical examination and systemic examination was performed. Abdominal examination included measurement of SFH,lie, presentation and fetal heart sounds auscultation. Vaginal examination findings i.e. cervical dilatation, position, caput and moulding were noted.Blood sample taken as per routine to check haemoglobin. Haemoglobin less than 10gm/dl was defined as anaemia. Mode of delivery, intrapartum and postpartum complications and fetal outcome was noted. All information entered on a structured questionnaire and later on transferred to SPSS Version 13.

Statistical Analysis

Mean and standard deviation of quantitative variable like age, parity and gestational age was calculated. Frequency and percentages of qualitative variables (obstetrical complications) were analysed by chi squire test. P value of <.05 was taken as significant.

RESULTS

Demographic features are expressed in table I. Mean age of grand multipara was 33.16 years and that of multipara was 28.34 years. Mean gestational age was 38 weeks in both groups. Mean parity was 6 in grandmultipara and 3 in low parous women. Younger age of GMP is due to early marriage. 48% of GMP and 38% of low parous multipara were non booked (table II). Obstetric complications are explained in table III. Anaemia was present in majority of women in both groups including 78% grandmultipara and 79% low parous women which is statistically not significant(p value 0.315) ,this could be due to high prevalence of anaemia in general population. Placenta previa was observed in 2% of grand multipara only.Abruptio placentae was diagnosed in 16% women of grandmultipara and 6% of less parous women (p value0.05). Malpresentations were seen in 17% of grandmultipara and 6% of multipara (p value.05). Bad obstetric history was seen significantly more in grandmultipara. History of miscarriage was present in 38% grandmultipara and 5% multipara (p value 0.001) while 20% GMP and 6% MP delivered IUD babies previously. Cephalopelvic disproportion was found in 28% of multipara only (p value 0.001). Caesarean section rate was higher in multipara (44%) than grandmultipara (22%).Conversely instrumental delivery was reported more frequently in grandmultipara than low parous multipara (16% Vs 8%). PPH was reported in 12% of grandmultipara and 2% of multipara (p value 0.05).Stillbirths were delivered 6% in grandmultipara and 2% in multipara (p value 0.05). Early NNDs encountered in 24% of grandmultipara and only 2% of low parous multipara (p value 0.001).

DISCUSSION

Increasing parity is associated with high incidence of complications during pregnancy, labour and postpartum. Antenatal booking helps to identify high risk women. Micheal D in his study found that out of 65 grandmultipara 28(4.3%) did not have any antenatal care while out of 15255 less parous women 195 (1.3%) have not received any care during pregnancy [15]. In our study 48% of grandmultipara and 38% of multipara were non booked, the difference was statistically not significant as there is a general trend of un supervised pregnancies in our society. Micheal D reported mean age of GMP 38.4 years and 26.6 years of less parous women. We found 62% grandmultipara were above 30 years and mean age was 33.16 years while mean age of multipara was 28.34 years. Relatively younger age of GMP is probably due to early age at marriage especially in rural areas and low socio-economic group. According to WHO criteria haemoglobin < 11g/dl at

TABLE I
DEMOGRAPHIC FEATURES OF PATIENTS

	Grandmultipara (GMP) Mean(range)	**Low parous women (MP) Mean (range)**
Age	33.16 (25-40)	28.34 (20-35)
Parity	6 (5-11)	3 (2-4)
Gestational age	38 (28-41)	38 (28-41)

TABLE II
BOOKING STATUS IN GMP & MP

Booking Status	GMP	MP
Booked	52%	62%
Non booked	48%	38%

TABLE II
COMPARISON OF BAD OBSTETRICAL HISTORY IN GMP & MP

Obstetric History	**GMP**	**MP**
Miscarriage	38%	8%
Intrauterine Death	20%	6%
Stillbirth	6%	2%

TABLE III
COMPARISON OF OBSTETRIC COMPLICATIONS

Complications	**GMP n = %**	**MP n= %**	**P Value**
Anaemia	78%	79%	0.315
Placental Abruption	16%	6%	0.05
Placenta Previa	2%	0%	0.315
Malpresentations	17%	8%	0.05
Instrumental Deliveries	18%	4%	0.05
Caesarean Section	4%	18%	0.00
CPD	-	14%	0.00
Stillbirth	6%	2%	0.05
Neonatal Death	22%	2%	0.00
PPH	12%	2%	0.05

any gestational age is considered as anaemia. We took 10g/dl as cut off level .Using this criteria 78% in group I and 79% in group II were anaemic which was statistically not significant. This could be due to high prevalence of anaemia in our general population. Obororo et al found in his study that incidence of severe anaemia in urban areas was 72% and 4% in rural areas [16]. He also noticed that parity had no effect on prevalence of anaemia which correlates with our study. Kavitah et al in a study reported high incidence of abruption placentae (8%) in grandmultipara [14].The results of the present study also revealed that abruption of the placenta was common among the grand multipara (16%) as compared to 6% in multipara whereas the occurrence of placenta previa was only 2% in grandmultipara. Abruptio placenta is a major complication which is seen in the grand multipara. [17, 18] The parity of the patients was considered to be significant factor for the occurrence of placental abnormalities. However some western studies reported lesser incidence of APH, which can be attributed to a higher socio economic status, better nutrition and a better knowledge regarding the prenatal care of the people in the developed countries. So, the higher incidence of placental abruption in the present study may be related to the poor socio economic status, poor nutrition and poor knowledge regarding the lack of antenatal care in our population. Postpartum haemorrhage (PPH) is most important complication of grand multiparity due to poor contractility of uterus after delivery as a result of laxity. In a similar comparative study between grand multipara and non grand multipara Kavitah et al found higher incidence of PPH in grandmultipara (12% vs 4%)[14]. Prandeville WJ et al reported in his study that PPH occurs in 10.8% women of grandmultiparity and 1.9% women of low parity [19]. Though recently some studies reported that GMP does not increases risk of PPH [20] In our study 12% grandmultipara and 2% of low parous women encountered PPH , the risk being significantly higher in grandmultipara. A Malaysian study reported no significant history of miscarriages and intrauterine deaths in multipara but they reported high incidence of meconeum staining and neonatal deaths in these women[21].In our study history of miscarriage and was present in 38% of grandmultipara and 8% of low parous women while 20% grandmultipara and 6% multipara gave history of intrauterine death. Neonatal death was also noted more in grandmultipara (6% v/s 2%). These findings suggest that grandmultiparity is associated with adverse fetal outcome.

CONCLUSION

It can be concluded from study that grand multipara are at a greater risk during pregnancy and labour. In view of the results obtained in this study, we feel that It can be concluded that in comparison with the other patients, grand multiparity continue to pose major threats to women life. The study results show that grandmultiparity is associated with increased risk of miscarriage, anaemia, APH, malpresentations, instrumental deliveries and PPH. It is also strongly associated with high rate of neonatal death. Majority of our local population is ignorant of the fact that through proper antenatal care many of their problems can be identified and managed. It is recommended that GMP should be considered a risk factor by searching for evidence through a population-based nationwide study. As in low health-resource settings all pregnancies are prone to adverse outcomes, so adequate management of labour, a good referral system as well as the practice of basic and comprehensive obstetric emergency care should be mandatory. Awareness regarding proper antenatal care and family planning should be developed in society to reduce complications associated with grandmultiparity.

REFERENCES

1. Al Jama FE, C.A.B.O.G. Grand multiparity: a potential risk factor for adverse pregnancy outcomes. *JRM* 2012; 57(1-2): 53-57.
2. Yves M, Jacquemyn K, Katrien V et al: A systemic review of grand multiparity. *Current WHR* 2006; 2 (1): 25-32
3. Rizk D, Khalfan M, Ezimokhai M. Obstetric outcome in grand multipara in the United Arab Emirates; A case control study. *Arch Gynecol Obstetric* 2001; 264(4): 194-198
4. Bai JB, Wong FWS, Bowman A et al. Parity and pregnancy outcomes. *AJOG* 2002; 186(2):274-278
5. Niles C, Nystrom L, Munjanja S et al. Self reported reproductive outcome and implications in relation to use of care in women in rural Zimbabwe. *AOGS* 2002; 81(6):508-515.
6. Bugg GJ, Atwal GS, Maresh M. Grand multipara in modern setting. *BJOG* 2002; 109(3):249-253.
7. Paulson RJ, Boostanfar R,Saadat P et al. Pregnancy in sixth decade of life: Obstetric outcomes in women of advanced reproductive age. *JAMA* 2002; 288(13): 2320-2323.
8. Simonsen SM, Lyon JL, Alder SC et al: Effect of grand multiparity on intrapartum and newborn complications in young women. *JObstet Gynecol* 2005; 106(3):461-465
9. Saadia Z, Farrukh R, Naheed F. Maternal outcome in grandmultipara. *Ann King Edward Med Coll* 2002;8 (3) : 207-210
10. Abel R, Rajaratnum J, Gnanasekarana VJ et al: prevalence of

anaemia and iron deficiency in three trimesters in Rural Vellore District, south India. *Trop Doct* 2001; 31(2):86-89

11. Seoud MA-F, Nassar AH, Uata IM et al: Impact of advanced maternal age on pregnancy outcome. *Am J Perinatol* 2002; 19(1): 001-008
12. Noraihan M. Nordin, Choong KF, Suhaimi I, Edwin MS: Is grand multiparity still a significant risk factor in this new millennium. *Malays J Med Sci* 2006; 13(2) :52-60
13. Shehla N, Nasreen R, Shagufta M: Malpresentations incidence and causes. *J Postgrad Med Inst* 2001: 15 (1): 33-38
14. Kavitha D, Francis NP, Monterio, Jayaparkash K et al : Spectrum of grand multiparity . JCDR 2011 Nov (suppl- I); 5 (6): 1247-12 retrospective observational study. *MJA* p 2003; 179(6):294-296
16. Obororo VO, Tabowei TO, Jamekalajah J. Prevalence and risk factors for anaemia in pregnancy in Southern Nigeria. *J Obstet & Gynecol* 2002; 22(6):610-613
17. Toivonen S, Heinonen S, Anttile M, Kosma VM, Saarikoski S. Reproductive risk factors, doppler findings, and the outcome of affected births in placental abruption.*AJP* 2002; 19 (8): 451-460.
18. Sheiner E, Shohan-Vardi I, Hallak M, Hadar A, Gortzak-Uzan L, Katz M et al. Placental abruption in term pregnancies: clinical significance and obstetric risk factors. *J Matern Fetal Perinat Med* 2003; 13(1): 45-49
19. Prendiville WJ, Elborne D, McDonald S. Active versus expectant management in third stage of labour. *Cochrane Database Sys Rev* 2000 ;(3):7-9
20. Nordin NM, Fen CK, Isa S, Symonds EM: Is grandmultiparity a significant risk factor in this new millennium? *Malays J Med Sci* 2006, 13(2):52–60.
21. Tai C, Urquhart R. Grandmultiparity in Malaysian women. Asia Oceania *J Obstet Gynaecol.* 1991; 13(4):327–334.

Authors contribution:
* Concept and design ** Supervisiion of project
*** Collection of Samples, Data Analyysis,

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