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Study of caesarean section in grande multiparity

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ABSTRACT

Introduction: Grand-multiparity has been known to be an obstetric risk because of the documented complications associated with the condition, and it is an indication for booking in a tertiary health institution. Aim: to study importance of ANC, complications and indications of caesarean section in grand multi's and to investigate fetomaternal outcomes. **Materials and methods:** This is retrospective study conducted over a period of 2-years from august 2012 to June 2014. A total of 3640 deliveries were performed during 2 years, of these 858 were grand multiparas observed.100 multiparas who has undergone caesarean section were studied. Maternal and fetal variables assessed carefully. Informed consent was taken. **Results:** 100 cases of grande multiparas delivered by caesarean - section were analyzed. The incidence of caesarean section in grande multiparas in present study is 11.5%. 39% of cases were in 29-33 years age group and 28% were 34-38 years old. 90% cases were illiterate with only 4% having7th standard educational status. 79% were unbooked. 86% were of low socioeconomic status. 32% were gravida - 6, 20% were gravida -7, and 18% were gravida-5. The commonest indications for caesarean section were: APH - 28% of cases, Obstructed labour, Mal presentation and position - 24% of cases, Fetopelvic disproportion - 20% of cases, Fetal indications (distress) - 12% of cases, Soft tissue dystocia - 5% of cases, Multiple - indications - 11 % of cases. In 97% of cases caesarean section was done as an emergency procedure. Sub-umbilical midline incision was taken in all cases. In 93% lower segment caesarean section was done and in 6% required inverted T incision and classical in 1 case. The acceptance of sterilization was 79%.PNMR was 21.56% due to intrapartum sepsis, obstructed labour and APH (22/ 1000 births).MMR was 1 %, cause was due to septicemia and anemia. **Conclusion:** This study concluded that, in comparison to other patients, grande multiparas run a greater risk during pregnancy and labour. This risk can be effectively reduced with good ANC but still they are liable to serious complications of pregnancy which can lead to higher MMR and PNMR.

Key words: Grand multi paras, Antepartum haemaorhage, Caesarean section

Introduction

The term, grand-multipara was introduced in 1934 by Solomon who called the grand-multipara the "dangerous multipara" [1]. Grand-multiparity has been differently defined in the literature. Some writers defined it as a woman with four or more parous experiences while others considered it as six or more[2]. The International Federation of Gynaecology and Obstetrics (1993) defined grand-multiparity as delivery of the fifth to ninth viable pregnancies, whereas women who are undergoing their tenth (or more) delivery are considered to be great grand-multiparous or huge grand-multip[3-6]. The incidence of grand-multiparity has decreased in most countries, mainly because it constitutes a burden to the family and state/country. In developed countries grand-multiparity is becoming rare, with an incidence of 3% - 4% 2 of all births while in developing countries incidence of grand-multiparity is between 19.30% - 33.64%[7,8]. Grand multiparity has been considered an independent factor for increasing adverse outcome for both fetus and mother specially diabetes mellitus, antepartum hemorrhage, malpresentation, cesarean section rate, postpartum hemorrhage, iron deficiency anemia, and a high perinatal mortality rate Al JF[9]. More recent reports, however, have demonstrated that in the presence of good perinatal care, grand multiparity no longer need to be considered an obstetrical risk in the presence of satisfactory health care conditions[10,11].The aim of this study is to investigate importance of ANC, indications and complications of grand multi's leading to caesarean section and to investigate fetomaternal outcomes.

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Materials and methods

In this retrospective study, the data were gathered from patient's case notes over a period of 2-years from august

2012 to June 2014 at Government General Hospital in an attempt to determine the prevalence of grand multiparity and its associated risks. In this study, a grand multiparas woman was defined as a woman who gave birth to 5 and more deliveries after 24 weeks gestations. A total of 3640 deliveries were performed during 2 years, of these 858 were grand multiparas which were the actual number of grand multiparity during the whole 2 years. Total number of caesarean sections performed during this period was 826, and of these 100 were caesareans in grand-multiparas. Sociodemographic factors, obstetric complications, and neonatal morbidity were recorded from the case note. Maternal variables we assessed included diabetes mellitus, hypertensive disorders of pregnancy, premature rupture membrane, placental abruption, placenta previa, medical problems (such as asthma, epilepsy and hypothyroidism), postpartum hemorrhage, tears, cesarean hysterectomy, preterm labor, mode of delivery and post term labor(diabetes was assessed separately because it is important variable for pregnancy outcomes). Each of these variables was analyzed. Macrosomia is defined as fetal weight greater or equal to 4kg.Fetal variables we assessed were Admission to nursery, small for gestational age, fetal death, Apgar score, fetal weight, gestational age at delivery, fetal distress and macrosomia. Each of the fetal complications was assessed. Statistical analysis was done using SPSS 17 version.

Results

The incidence of caesarean section in grande multipara in present study is 11.5%.Most of the grande multiparas 39% were between the age of 29-33 years, we had only one para 5 of 45 years old, one para 5 was just 23 years old. 90% of women were illiterate. Illiteracy was a very distinct feature in this study. Most of the women in the present study 79% were unbooked cases, who were directly admitted to labour room with labour pains or some complications. Some form of ANC received in PHC were 21% but none had >3 ANC visits. Most of the grande-multiparas are from low socio-economic group (86%) who are prone to develop anemia and its hazards due to worsening of it. (Table 1)

Table 1: Demographic data of patients

Variable	No. of patients	Incidence (%)
Age in years		
20-23	1	1.00
24-28	25	25.00
29-33	39	39.00
34-38	28	28.00
39-45	7	7.00
Education Grade		
Illiterate	90	90.00
1st-3rd std.	2	2.00
4th _ 6th std	4	4%
7th and above	4	4.00
Booked cases	21	21.00
Unbooked cases	79	79.00
Socio-economic Status		
Low	86	86.00
Middle	14	14.00
High	-	-
Parity		
5	18	18.00
6	32	32.00
7	20	20.00
8	9	9.00
9	13	13.00
10	4	4.00
11	3	3.00
12	1	1.00

In present series 32% patients were para 6, 20% patients were para 7 and 18% patients were para 5 observed.

Table 2: Incidence of anemia and PIH

Variable	No. Of patients	Percentage
Grade of anemia		
Mild	48	48.00
Moderate	26	26.00
Severe	7	7.00
Type of disorder		
Mild PIH	10	10.00
Moderate PIH	3	3.00
Severe PET	1	1.00
Eclampsia	1	1.00
Chronic HPT	1	1.00

Total incidence of anemia was 81% among which 48% had mild anemia, 26% had moderate anemia and 7% had severe anemia that required blood transfusion. Total incidence of hypertensive disorder of pregnancy was 16%. (Table 2).

Table 3: Variables in Study

Indication	l\lo. of patients	Incidence {%)
APH	28	28.00
Obstructed labour		
a) Malpresentations and mal-positions.	24	24.00
b) Fetopelvic disproportion	20	20.00
Fetal indications (distress)	12	12.00
Soft tissue dystocia	5	5.00
Others		
a) Multiple-pregnancy	2	2..00
b) Prolonged PROM	3	3.00
c) Previous LSCS	3	3.00
d) Failed induction	2	2.00
e) DM with big-baby	1	1.00
Total	100	100.00
Ante partum haemorhage		
Placenta praevia	16	16.00
Abruptio placenta	10	10.00
Combined	2	2.00
Total	28	j 28.00
Malpositions		
Transverse lie	11	11.00
Face and brow	2	2.00
Post parietal	2	2.00
Compound presentation	3	3.00
Breech	6	6.00
Total	24	24.00

The antepartum hemorrhage 28% was the commonest indication for caesarean section in the present study. The second commonest indication was for malpresentation and malpositions i.e.24% out of which transverse lie (11%), breech (6%), and were more contributors. Face presentation was seen in 2%, post parietal 2% and compound in rest 3% of cases.The third commonest indication was for cephalo pelvic disproportion i.e., 20%. Out of which one patient had poliomyelitis of right leg and one patient had history of trauma (fracture neck of femur) before present

pregnancy. The fourth common indication for caesarean section in present study was for fetal indications (distress) i.e., 12%. There were various associated factors with this indication contributing to fetal distress. Soft tissue dystocia was seen in 5% of cases, of which there were three cases of 2nd degree u-v prolapse with pregnancy where the cervix was completely edematous and failed to dilate. In rest two cases secondary cervical dystocia was seen. There in 3% of cases prolonged PROM (> 24 hours) was present, and they were handled outside. Multiple pregnancy i.e. twins was there in 2% of cases. In one case 1st fetus was presenting by transverse lie. In another case 1st baby was presenting with footling presentation. Both were dichorionic diamniolic twins. Increasing parity and increasing maternal age effect the frequency of twinning. The frequency of double ovum twinning is influenced by these factors.Failed induction was seen in 2% of cases one was for huge hydramnios with anencephaly and other is for eclampsia. In one case of DM elective section was done as estimated baby weight was 4.25 Kg. (Table 3)

Table 5: Fetal indications for caesarean section

Indication	No. of patients	Incidence (%)
Heart disease with fetal	1	1.00
Chronic HPT with fetal	1	1.00
Occ. Post with fetal distress.	4	4.00
Cord prolapse with FD	4	4.00
PROM with FO	2	2.00
Total	12	12.00

Fetopelvic disproportion is seen in 20% of cases. Out of which acquired pelvic deformity was seen in 2% of cases. One patient had poliomyelitis right leg and one patient had given history of trauma (fracture neck of femur) before the present pregnancy. Out of 28% APH 16% were placenta praevia and 10 had Abruptio placenta and two had combined type. (Table 3)

Table 5: Data of incidence of medical disorder, type of delivery and indications for elective section

VARIABLE	No. of patients	Incidence (%)
Type of medical disorder		
Heart disease (RHD)	1	1.00
Diabetes mellitus	1	1.00
Total	2	2.00
Type of Delivery		
Emergency	97	97.00
Elective	3	3.00
Indication for elective section		
DM with big baby	1	1.00
Transverse lie with previous LSCS	1	1.00
Two previous LSCS	1	1.00
Total	3	3.00

Out of 12 cases, one case had heart disease with fetal distress, chronic HPT with FD was observed in 1%, PROM with fetal distress in 2%. Cord prolapse - 4%, Occ. Post with FD was 4% observed. As it is a referral hospital, most of the patients came in late stages and most of them were handled outside. Incidence of medical disorders in the present study is 2%, one is with heart disease and other is diabetes mellitus. In present study most of the cases i.e. 97% of caesareans were done as emergency procedures, as most of the cases were admitted in labour with complications. Elective section was done in 3% of cases (DM with big baby, transverse lie with LSCS, two previous LSCS). Congenital malformation in present study as 1.96%, one baby had anencephaly and one is open sipnabifida. (Table 5).Commonest type of caesarean section was lower segment caesarean section i.e., 93%. Inverted T incision i.e. 6% was given in cases of obstructed labour

and neglected shoulder presentations. In one case classical incision was taken because of previous two LSCS, as it was technically difficult to reach the lower uterine segment. Sterilization was done in 79% of cases, 21 cases were not willing for sterilization.

Table 6: Data of birth weight of infants

Birth weight (in Kgs.)	No. of patients	Incidence (%)
1.0- 1.5	-	-
1.5-2.0	5	5.10
2.0-2.5	15	14.70
2.5-3.0	27	26.47
3.0-3.5	40	39.20
3.5-4.0	11	10.78
> 4 Kgs	4	3.92
Total	102 (2 twins)	100.00

Maximum number of babies that is 39.2% were weighing between 3.0 - 3.5 Kgs and 26.47% between 2.5 and 3.0 Kgs, 14.7% between 2.0 - 2.5 Kgs, 10.78% between 3.5 - 4.0 Kgs, 5% between 1.5 - 2.0 Kgs of which four babies were of twins and 3.92% more than 4 Kgs weights. (Table 6)

Table 7: Data of perinatal mortality, maternal mortality and morbidity

Variable	No. Of patients	Incidence (%)
Perinatal mortality		
Still births	10	9.80
Neonatal deaths	12	11.76
Total	22	21.56
Maternal mortality		
Septicemia	1	1.00
Total	1	1.00
Maternal morbidity		
Blood transfusion	10	10
Post operative pyrexia	12	12.00
Wound infection	4	4.00
Wound dehiscence	2	2.00
VVF	1	1.00
Pulmonary complications	2	2.00
Post operative UTI	3	3.00
Total	34	34.00

Perinatal mortality in present study is 21.56% among which 10 were still - births and 12 were neonatal deaths. Maternal morbidity in present series is 34%. Incidence of maternal mortality in present series was 1 %.

Discussion

In this study indications for caesarean sections in grande multiparas in a total of 100 cases have been analyzed. Incidence in the present study was 11.50% compared with different studies by Narendra Kumari et al[12] (10.80%), John o sullevian et al[13] (12.60%). Incidence of age in present study 39% of grande multiparas were in between 29-33 years compared with other studies by Planichary et al[14] (32-33 yrs), Narendra Kumari et al[12] (>36 yrs).Most of the women were more than 30 years of age. The age of gravida is important because of effects of age. Ageing process causes systemic disease such as HPT, DM, IHD, etc. Also there is a risk of trisomy. Illiteracy was a very distinct feature in this study. 90% of patients were not educated. In the present study majority of cases were unbooked i.e. 79%, booked cases 21%. Similar results found by Sarah Jacob et al15 unbooked cases 78%, booked cases 28%, Narendra Kumari et

al12 unbooked cases 79%, booked cases 18%. This could be because the patients who come to the hospital in present study are from rural setup and are of low socioeconomic status and illiterate. Maximum number of patients i.e., 86% in this study belong to low socioeconomic status. Rest 14% is from middle class families with income of less than Rs.1000 / month. These people are more prone to develop anemia and hazards due to worsening of it. Mean parity in present study is 6, i.e., 32%. We had one P12 L5 of 40 years age compared with other authors i.e., Mita and K.Sikdar et al16 (6%), Eidelman et al[17](6%). Incidence of anemia in the present study is 81%, very much high and commonest complication in this series. This is due to poor socioeconomic status, poor hygiene leading to round worm and hook worm infestations, gastrointestinal disorders and also poor awareness of nutritive value of food stuff etc. It is also profound because the mother neglects her diet while caring for her several children. Similar results found by Narendra Kumari et al12 (85%), John O'Sullivan et al[13] (75%).A hypertensive disorder in present study is 16% (chronic HTP and toxemia of pregnancy have been included in these groups). Present study shown lower incidence compared to Narendra Kumari et al[12] (31.7%). Observations in this study show that hypertension is still a major complication.

Table 7: Indications for caesarian section comparison studies

SI.No.	Indication	John Sullevian13	FY Kasturalal18	Palanichany14	Kalavashista19	K.Sidar& Mitra16	Nelson 20	Faculty of Medicine21	Present study
1.	Antepartum Haemorrhage	22%	12%	45%	33%	44.2%	5%	9.1%	**28%**
II.	Obstructed Labour:								
	a) Malpresentation & Malpositions	12%	18%	24.5%	22%	12.2%	9%	16%	**24%**
	b) Feto Pelvic Disproportion	18%	12%	13.5%	12.5%	19.09%	4%	26.5%	**20%**
III.	Fetal Indications (Distress)	--	-	4.6%	7.1%	12.2%	-	4.2%	**12%**
IV.	Soft Tissue Dystocia	--	-	8.6%		9.1%	1%	-	**5%**
V.	Others								
	a) Multiple Pregnancy	2.1%	--	--	1.9%	-	--	--	**2%**
	b) Failed Induction	--	--	-	3.4%	--	--	7%	**2%**
	c) Diabetes Millitus with Big Baby	--	--	-	--	-	--	3.5%	**1%**
	d) Prolonged PROM.	--	--	18%	5.3%	--	--	--	**3%**
	e) Previous LSCS	--	--	-	3.9%	--	--	19.5%	**3%**

Indications for caesarean section, fetal indications were compared with different studies. (Table 10). The exact cause of increased incidence of placenta praevia is not known. It is commonly seen with increased parity and ageing, it may be due to defective vascularization of decidua as a result of inflammatory and atrophic changes which in turn are aggravated by age and repeated pregnancies.The limited blood supply to placenta causes it to spread over a greater surface of uterus than normal. Cause for Accidental hemorrhage may be due to hypertension and folic and deficiency which are complications of grande multiparity. Malpresentations are common among grande multiparas. They are favoured by pendulous abdomen due to unusual relaxation of abdominal wall. Increase in parity leads to reduction and elasticity of uterine musculature and anterior abdominal wall.

Table 8: Comparasion studies of malpositions

Complications	**Palanichamy14**	**K.Sikadar & Mitra16**	**Aziz21**	**Fuchs22**	**Eidelman17**	**Medical Academy of Poland20**	Present series
Transverse lie	12.50%		1.9%		3.0%	13.0%	**11.0%**
Breech			6.5%	7.03%	2.2%		**6.0%**
Compound presentation		2%			11.0%	•	**3.0%**
Post parietal		1.0%				-	**2.0%**
Brow			0.4%	0.5%	1.1%	•	**2.0%**

Hyperlordosis of lumbar vertebral spine is which can be associated with increase in pelvic inclination and an increased incidence of placenta praevia. Also it is usual for the head not to enter the pelvic cavity until labour is well established. Strong uterine contractions exerting their forces in the wrong axis will favour and worsen

malpresentation. Weak pelvic, floor in a grande multiparas lead to deflexion or extension of the head coupled with large size baby. Fetopelvic disproportion in present study is 20%. It is well compared with K.Sikdar and Mitra[16] series. Parity does not guarantee against disproportion. As parity increases size of babies increases as reported by Robert Sack (1969). The increased in the size of babies lead to fetopelvic disproportion and necessitated caesarean section.The cause for cephalopelvic disproportion may be due to forward subluxation of the sacrum and increased inclination of pelvic brim due to lumbar lordosis and laxity of sacral iliac joint and ligaments due to lack of time for proper involution with repeated pregnancies. Forward subluxation of the sacrum over the sacoiliac joint decreases the anterio-posterior diameter of the brim. Age related changes in connective tissue may increase the resistance of the cervix and the pelvic floor during delivery, thus increasing the chances of obstruction. Repeated pregnancies lead to calcium depletion, subclinical osteomalacia and leads to pelvic deformity. Incidence of medical disorders in the present study is 2%, one is with heart disease and other is diabetes mellitus. Disorders of carbohydrate metabolism were increased in women of high parity who are usually older than 35 years.In present study most of the cases i.e. 97% of caesareans were done as emergency procedures, as most of the cases were admitted in labour with complications. Elective section was done in 3% of cases (DM with big baby, transverse lie with LSCS, two previous LSCS). Congenital malformation in present study as 1.96%, one baby had anencephaly and one is open sipnabifida. It is well compared with P.Sipla et al[23] (2.10%). It shows that as parity and age increases, congenital, malformations also increases accordingly.In the present study anesthesia commonly used was spinal - 94% and general anesthesia was given in 6% of cases. In all the cases sub-umbilical midline incision was taken. For quick delivery of the fetus in fetal distress due to obstructed labour, APH, cord prolapse, and malpresentations, sub-umbilical midline incision was ideal. Commonest type of caesarean section was lower segment caesarean section i.e., 93%. Inverted T incision i.e. 6% was given in cases of obstructed labour and neglected shoulder presentations. In one case classical incision was taken because of previous two LSCS, as it was technically difficult to reach the lower uterine segment. Sterilization was done in 79% of cases, 21 cases were not willing for sterilization. Tubectomy should be done with caesarean section in grande multiparas but tubectomy is not an indication for caesarean section. Illiteracy was a very distinct feature among these women and hence, failure to accept family planning methods. Maximum number of babies that is 39.2% were weighing between 3.0 - 3.5 Kgs and 26.47% between 2.5 and 3.0 Kgs, 14.7% between 2.0 - 2.5 Kgs, 10.78% between 3.5 - 4.0 Kgs, 5% between 1.5 - 2.0 Kgs of which four babies were of twins and 3.92% more than 4 Kgs weights. Prematurity was due to maternal complications such as eclampsia, PET, multiple pregnancies, placenta praevia, abruptio placenta. The incidence of over weight babies in this study was 3.92%. It was considered overweight, when baby was > 4 Kgs weight.Perinatal mortality in present study is 21.56% among which 10 were still - births and 12 were neonatal deaths. The increase of still births and neonatal deaths in our series may be explained by the fact that, most of our admissions were emergency admissions, late in labour with complication like APH, eclampsia, PET and obstructed labour.Fetal mortality curve rises as parity increases. Mortality is high due to caesarean done for maternal indication rather than for fetus. PNMR also depends on many other factors like socioeconomic status; availability of ANC associated medical disorders, period of gestation, and indication for caesarean section and type of anesthesia.Similar results found by K.Sikdar and Mitra et al[16] (22%), Kalavashista et al[19](23%) while higher incidence than studies by Kasturila et al[18] (19.2%),Palanichamy et al[14] (17.20%). Maternal morbidity in present series is 34% is high compared to other authors Faculty of medicine Poland et al (27%), Sarah Jacob et al (18.6%). The increased incidence of maternal morbidity in the present study is mainly because of late admission with obstructed labour, severe anaemia and supervening intrapartum sepsis. Maternal morbidity is due to UTI, anemia requiring blood transfusion, intrapartam sepsis leading to peritonitis paralytic ileus and WF. WF was seen in one case following obstructed labour. Incidence of maternal mortality in present series was 1 % (due to septicemia) is low compared with other studies by Kalavashista et al[19] (5%), Palanichamy et al[14] (2.6%).Possible reasons for grande multiparity: None or one living male child, Religious bias, Lack of family planning knowledge, Inadequacy of availability of family planning methods. In the present series we motivated each patient for sterilization and explained the hazards of grande multiparity. But only 79% cases underwent sterilization operation. All the above reasons could have contributed to their attaining the grande multipara status.

Conclusion

The demand in modern obstetrics is the scent percent perfection in getting a non-traumatized baby from a non traumatized mother. Hence, it can be concluded that, in comparison to other patients, grande multiparas run a greater risk during pregnancy and labour. This risk can be effectively reduced with good ANC but still they are liable to serious complications of pregnancy which can lead to higher MMR and PNMR. Ultimate prophylaxis is of this high pregnancy lies in the prevention of high parity, rather than prevention of its complications.Grande Multiparity remain a socio economic problem which may be solved by a effective family planning measures, increasing the level of education and by bringing awareness among people about the complications of grande multiparas and removal of old social stigmas.

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