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Fetomaternal outcome in grandmultipara

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Abstract
Background: Grandmultiparity has been associated with adverse outcome for both fetus and mother such as antepartum hemorrhage, malpresentation, caesarean section rate, postpartum hemorrhage, iron deficiency anemia, and a high perinatal mortality rate.
Objectives: The purpose of this study was to evaluate the parity related complications during pregnancy and labour and fetal outcome in the grand multiparas and to compare them with that of second gravida patients.
Materials and Methods: It was a hospital-based prospective study conducted in the Department of O&G, VIMSAR, Burla from November-2017 to October-2019. Cases were defined based on WHO criteria. Relevant data was collected from case records of Grandmultiparae patients.
Results: Out of 16765 deliveries, total no.of grandmultiparae were 170. Grandmultiparae incidence was 1.01. Significant association was found between grandmultiparity and adverse pregnancy outcomes such caesarean delivery,pregnancy induced hypertension and post-partum hemorrhage. A higher incidence of antenatal anaemia and increased still birth rate was found in grandmultiparous patients than multiparous controls.
Conclusion: Grandmultiparity is associated with increased incidence of medical and obstetric complications.

Keywords: Grandmultiparous, pregnancy outcome, obstetric complications

Introduction
Grand multiparity, as per the International Federation of Gynaecology and Obstetrics, is the delivery of the fifth to ninth infant, whereas women who are undergoing their tenth (or more) delivery are considered to be great-grand-multiparas [1-5] Grandmultiparity has been considered an independent factor for increasing adverse outcome for both fetus and mother specially diabetes mellitus, antepartum haemorrhage, malpresentation, caesarean section rate, postpartum haemorrhage, iron deficiency anaemia, and a high perinatal mortality rate [6]. Numerous obstetric complications have been independently associated with progressive
maternal age [7].

Objectives
The aim of the study was to determine the prevalence of grandmultiparity (G^6-G^{10}); To find out the incidence of maternal complications in terms of antepartum, intrapartum & puerperal complications as well as the foetal outcome in terms of birth weight, NICU admissions, apgar score, jaundice, birth injury, and to compare it with that of second gravida (G^2).

Methods
This hospital-based prospective study was conducted in the Department of O&G, VIMSAR, Burla for 3yr period from November-2017 to October-2019 which has a very high intake of patients and caters a very large region of western Odisha. All grand multiparous women who delivered after 28 weeks of gestation during this 3 year period served as study group. The G2 patientsconsisted of the second gravida G [2]. Socioeconomic factors were recorded and classified according to the revised Kuppaswamy scale. [8] Obstetric complications and neonatal morbidity for both groups was recorded. Maternal variables assessed included diabetes mellitus, hypertensive disorders of pregnancy, premature rupture membrane, placental abruption, placenta previa, of medical problems (such as asthma, epilepsy and hypothyroidism), postpartum haemorrhage, tears, caesarean hysterectomy, preterm labor, mode of delivery and post term labor. Each of these variables was analysed against each group.

For clarity, medical problems included (asthma, epilepsy and hypothyroidism) and diabetes included both pre- existing and gestational diabetes. Fetal variables 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 against each group.

Results

Table 1: Age distribution of grandmultipara and multipara patients

Age (in yrs)	Grandmultipara (n = 170)	G_2 (n = 200)
20-25	17(10%)	48(24%)
26-30	34(20%)	148(74%)
31-35	88(52%)	4(2%)
36-40	27(16%)	0(0%)
41-45	4(2%)	0(0%)

Table 2: Socio-economic status according to Kuppaswamy scale

Class	Grandmultipara (n = 170)	G_2 (n = 200)
Upper	0(0%)	4(2%)
Upper middle	2(1%)	10(5%)
Middle	44(26%)	60(30%)
Lower middle	60(35%)	86(43%)
lower	64(38%)	40(20%)

Table 3: Distribution with regard to gravidity

Gravity	Number of Mothers	Percentage
G 6	68	40.00
G 7	50	29.42
G 8	27	15.88
G 9	13	7.65
G 10	9	5.29
G 11	3	1.76
Total	170	100

The total number of deliveries during the study period was 16,175 of these 170 were grand multiparas. Thus, the prevalence of grand multiparity was 1.01 %. Majority (63.96%) of grand multiparous belonged to age group of 31-35 years and more whereas higher number of G_2 belonged to age group of 26-30 years. There was significant difference in age distribution in both the groups (Table-1). Majority of patients belonged to middle, lower middle, lower groups of socio economic status according to Kuppaswamy scale in both the groups. No significant difference was seen in socio economic status between the two groups (Table-2). Majority grand-multiparous patients were of gravida 6 (40%) (Table-3)

Table 4: Complications of pregnancy

Complication of Pregnancy	Grandmultiparou (n=170)	Control Group (n=200)
Anaemia	116(68.%)	40(20%)
P.E.T	13(7.5%)	8(4%)
P.I.H.	4(2.3%)	4(2%)
Placenta praevia	7(4.1%)	8(4%)
Abruptio	8(4.7%)	2(1%)
Malpresntation	8(4.7%)	0
Multiple Pregnancy	3(1.7%)	0
Post-maturity	5(2.9%)	0
Diabetes	6(3.5%)	4(2%)
No Complication	0	130(67%)

PIH= pregnancy induced hypertension; PET= Pre eclamptic toxaemia; APH= antepartum hemorrhage

(Table 4) Anaemia (Hb <10g%) was present in 116 (68.%) of grand multiparous patients as compared to 40 (20%) of G_2 patients, which was statistically significant .Pregnancy induced hypertension (PIH) was seen in 4 (2.3%) of grand multiparous patients as compared to 4(2%) of G_2 patients which is same. Pre eclamptic toxaemia (PET) was seen in 13(7.5%) of grand multiparous patients as compared to 8(4%) of G_2 patients. No significant difference was seen between the two groups.Multiple pregnancies were seen in 3(1.7%) of grand multiparous patients as compared to nil of G_2 patients. No significant difference was seen between the two groups. Placenta previa was seen in 7(4.1%) of grand multiparous patients as compared to 8(4%) of G_2 patients, which was not significant, however abruption placenta was seen in more patients, 8(4.7%) of grand multiparous patients as compared to 2(1%) of G_2 patients, which was statistically significant. Diabetes showed similar preponderance in both the groups.

Table 5: Method of delivery

Method of delivery	Grandmultiparou s pt(n=170)	G2 Patients (n=200)
NVD	114(67%)	160(80%)
LSCS.	38(22.5%)	28(14%)
Forceps	6(3.5%)	8(4%)
ventuse	5(3%)	4(2%)
Assisted Breech	6(3.5%)	0
Laparotomy/ hysterectomy	1(0.5%)	0

(Table 5) Normal vaginal delivery was seen in more in G_2 patients (80%) as compared to grand multiparous patients (67%), which was statistically significant .Incidence of forceps and vacuum delivery were similar in both the groups. Hysterectomy rates were also similar in both the groups. There was higher number of Lower segment caesarean section (LSCS) in grand multiparous patients (23%) as compared to 14% of G_2 patients, which was statistically significant.

Table 6: Intra-partum complications

Complication	Grandmultiparou (n=170)	G2 patients(n=200)
Abnormal presentation	8(4.7%)	0
1^0 P.P.H	8(4.7%)	0
Retained Placenta	4(2.3%)	0
Rupture Uterus	1(0.6%)	0
Cervical Tear	2(1.2%)	4(2%)
Cord Prolapse	1(0.6%)	0
Obstructed Labour	12(7%)	0

(Table 6) maximum number of complications are seen in grand-multiparous patients than compared to G_2 patients during delivery, which was statistically significant.

Table 7: Post-partum complications

Complication	Grandmultiparou (n=170)	G2 patients(n=200)
PPH	17(10%)	8(4%)
Wound disease	10(5.8%)	4(2%)
UTI	7(4.1%)	8(4%)
Puerperal sepsis	14(8.2%)	13(6.5%)
Shock	10(5.8%)	8(4%)
Maternal death	1(0.5%)	0

Postpartum haemorrhage and wound infection was seen in more numbers of patients of grand multiparous group (10% & 5.8%) as compared to (4% & 2%) G_2 patients, which was statistically

significant. However no difference was seen in multiparous group in incidence of urinary tract infection, puerperal sepsis, shock and maternal death between the two groups (Table 7).

Table 8: Out-come of Labour

8a:-showing apgar score of babies				
Apgar Score	**Grandmultiparous pt(n=170)**		**G2 patients(n=200)**	
	1 Min	**5 Min**	**1 Min**	**5 Min**
0-3	10(5.8%)	10(5.8%)	0	0
4-7	61(35.8%)	10(5.8%)	60(30%)	0
8-10	99(58.2%)	150(88.4%)	140(70%)	200(100%)
Still birth	10(5.8%)		0	

8b:-showing birth weight of babies		
Baby wt. (in kg)	**Grandmultiparous pt(n=170)**	**G2 patients(n=200)**
< 2.5 (LBW)	6(4.2%)	8(4%)
2.5 – 3.0	132(75.1%)	184(92%)
3.0 – 3.5	30(17.3%)	8(4%)
> 3.5	5(3.4%)	0

More no of still born babies were seen in case of grandmultiparous patients (5.8%) as compared to nil in G_2 patients. Simmilarly Low birth weight of baby was seen more in grand multiparous patients (4.7%) as compared to 2.6% of G_2 patients patients, which was statistically significant (Table-8a/b)

Discussion

This prospective research of comparing the outcome of the grand multipara women with that of the women in their second gravida was conducted in the Department of O&G, VIMSAR, Burla for 3yr period from November-2017 to October-2019 which has a very high intake of patients and caters a very large region of western Odisha. The number of deliveries, which were conducted during this period was 16, 175. Total number of grand multiparous that delivered during this period were 170 patients which were compared with 200 G_2 patients.

The incidence of grand multiparity in the current study was 1.01 %. Due to the lack of consensus on the definition of grand multiparity, previous regional studies from India have documented different incidence of grand multiparity.[9] However higher prevalence of grandmultiparity was reported in developing countries [10, 11]. The low prevalence rate of grandmultiparity in this study can be explained by the high acceptance of family planning even in western Odisha people due to increase in both the literacy rate and socioeconomic status in last 10 years. The literacy rate increased from 55.52% to 72.87% as per census in India and majority of both multiparous and grand multiparous patients belonged to middle or lower socioeconomic status according to Kuppaswamy scale [12]. Majority of grandmultiparous patients (68%) were in the age group of 30 years or more, similar to study by *Afzal A et al* and Alsammamin which 71.24% grand multiparous were in the age group of 35 years or more [9, 13].

Grandmultiparity in our study was significantly associated with various complications of pregnancy, which was similar to various previous published studies [10, 13-16].

Anaemia showed an increased incidence in the grand multiparous patients (68%) as compared to G_2 patients (20%) similar to other studies [17-20]. Low socioeconomic class and repeated pregnancies which do not allow sufficient time to replenish their iron stores could be the cause of anaemia as described by various authors [18, 19].

A hypertensive disorder was not significantly associated with grandmultiparous patients as compared to G_2 patients, which was similar to studies by Alsammami and Akwuruoha [9, 10, 13] However, Rayamajhi reported significant association of hypertensive disorders in pregnancy with grandmultiparity [21].

Abruption of the placenta was more common among the grand multiparas (4.7%) as compared to G_2 patients (1%). Abruptio placenta is a major complication, which is seen, in the grand multiparas. The parity of the patients was considered to be significant factor for the occurrence of placental abnormalities [22, 23]. However, various other studies shows no difference in incidence between the grandmultiparous and G_2 patients which can be attributed to a higher socio economic status, better nutrition and a better knowledge regarding the prenatal care of the people in these developed countries [9, 13, 24]

There was a significantly higher incidence of multiple pregnancies and low birth weight babies were found in the grandmultiparous women than their G_2 controls as had been reported in other studies [16, 17] No significant association between grandmultipara and admission to ICU, intrauterine fetal death which was similar to study by Afzal et Al [9, 13]

Grandmultiparity was associated with a significantly increased incidence of caesarean deliveries than in the G_2 controls (23% vs 14%), which was similar to study by Kavitha [25]. However studies by Afzal et al and Akwuruoha found no difference in the rate of caesarean deliveries among grandmultiparae and their age-matched controls [9, 10] Increased incidence in our study can be attributed to increased incidence of malpresentation, diabetes and fetal macrosomia similar to study by Kavitha.24 There was no statistically significant difference in the rate of laparotomies, hysterectomies, and operative vaginal deliveries in the two groups studied. Post-partum complications incidence were similar in the two groups expect for post-partum hemmoraghe which was significantly more in grandmultiparous group.

However studies in developed countries with optimal prenatal and intrapartum care have shown no significant difference in the incidence of postpartum, haemorrhage in the grandmultiparous patients [17, 19, 26]

Conclusion

In view of the results obtained in this study, we feel that grand multiparity continue to pose additional risk for pregnancy outcomes even in modern obstetrics care. In a community where large family is desirable, still there is a place for family planning. Again, conduction of good antenatal and intrapartum care will result in much reduction of these adverse outcomes for

both fetus and mother. Further study is warranted to investigate the outcome of younger grand multiparty.

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