

The challenge of grandmultiparity in obstetric practice

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Abstract

Introduction: Traditionally grandmultiparity has been considered to be an obstetric hazard both to the mother and foetus. Compounding factors are low socioeconomic status, poor female literacy and social deprivation. In developed populations with improved and optimal obstetric services, parity per se is no longer considered a significant risk for adverse obstetric and perinatal outcome.

Objectives: To compare the obstetric and perinatal outcome between grandmultiparas and second gravidas with previous one delivery as well as analyse certain socio demographic features in the two groups.

Methodology: Case records from Maternity Hospital, Kathmandu, an inner city tertiary care centre were retrospectively studied. 106 cases of grandmultiparous patients were compared with 110 cases of second gravidas who had previously delivered once which was taken as the control group. Biosocial features as well as obstetric and perinatal outcome were analyzed.

Results: Rural residents comprised 60.4% of the grandmultiparous group versus 27.7% of the control group. A predominance of early marriage as well as an older age profile was noted in the grandmultipara. ANC attendance was documented to be much lower among grandmultipara with 26.4% having absolutely no antenatal care. A higher frequency of hypertensive disorders in pregnancy, preterm birth, anaemia, malpresentations, multiple pregnancy and premature rupture of membranes, postpartum haemorrhage and retained placenta was noted in the grandmultipara which also had a slightly higher caesarean delivery rate. The salient adverse perinatal outcome was found to be intrauterine foetal death, preterm birth and neonatal sepsis.

Conclusion: In our set up grandmultiparity continues to challenge our obstetric practice with its associated increased likelihood of maternal and perinatal complications. Concerted effort should be directed to reducing high parity in the community through effective family planning initiatives and specialized antepartum and intrapartum supervision of this group should be available.

Grandmultiparity, defined as a pregnancy preceded by five or more previous viable pregnancies (viz. pregnancies beyond 28 weeks in third world countries)¹ continues to challenge obstetric practice in the developing world. The overall incidence is between 10 – 30 % with higher rates in the Muslim countries where there is large family norm and poor acceptance of family planning methods. In 1987, the WHO, UNDP and World Bank convened an ‘International Safe Motherhood Conference’ in Nairobi, Kenya with the aim to draw attention to the appalling high maternal death rates in developing countries and to mobilize immediate and concerted measures at national and international levels to prevent this ‘neglected tragedy’.² Following this, ‘Safe Motherhood Initiatives’ in various countries took to identifying the high risk factors in pregnancies that were of concern in causing maternal deaths. A high risk scoring system was proposed by Coopland et al³ which identified grandmultiparity as a definite risk giving a high score of 2 (numerical scores of 0-3 depending on their potential impact on the outcome of pregnancy).

The complications of pregnancy in the grandmultipara are, increased risk of abortions, malnutrition and anaemia, multiple pregnancy, malpresentations, Rhesus isoimmunisation, antepartum haemorrhage and preterm labour. As the situation is seen in the older woman, medical complications such as diabetes, hypertension, cardiac disease and other chronic conditions, as well as gynaecological conditions such as fibroids, ovarian tumours, uterovaginal prolapse and carcinoma cervix are seen to complicate these pregnancies more than those of lower parity. In labour, malpresentations, cephalopelvic disproportion, uterine rupture, postpartum haemorrhage and puerperal complications are more frequently encountered. The foetus /neonate of the grandmultipara is at a higher risk of low birth weight, preterm birth and congenital malformations².

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Besides the obstetric risks, grandmultiparity is an indicator of poverty, deprivation and social inequities that women face in the developing world. It is a reflection of poor female literacy and employment opportunities as well as inadequate performance of National Family Planning Initiatives as well as maternal health services. The present study seeks to identify socio-epidemiologic factors that contribute to this and fetomaternal outcome of the grandmultipara.

Methodology

A retrospective study was conducted from Obstetric case records at the Maternity hospital, Thapathali, Kathmandu during the period Baishakh to Chaitra 2060. The two study groups identified for comparative analysis were the grandmultipara and the second gravida with previous one delivery. 106 case notes of grandmultipara and 110 of the multipara were analysed. The reproductive performance as well as certain biosocial features were comparatively studied. The Maternity Hospital is an inner city tertiary care centre recording approximately 16000 deliveries per year.

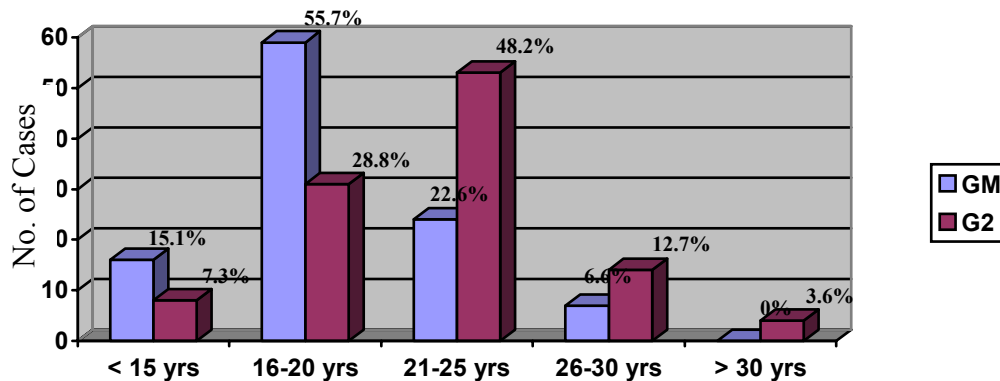
Results

Rural residents constituted 60.38% of the grandmultiparous group compared to 27.72% of the

control group reflecting a predominance of lower socioeconomic background with poor access to health care and family planning initiatives in the grandmultiparous group. The caste/ethnic background of the grandmultiparous group was as follows: 13.2% Brahmins, 18.9% Chhetris, 28.3% Newars, 11.3% Maguralis (Magar,Gurung,Limbu), 20.75% Lasheta (Lama,Sherpa,Tamang) and 7.54% Others (Muslims, Madwaris, Terai castes). Analysis of the control group revealed 20% Brahmins, 23.63% Chhetris, 26.36% Newars, 8.2% Maguralis, 14.5% Lashetas and 7.27% were others. The effect of caste/ethnicity on grandmultiparity was difficult to assess due to varying proportions in each group but on overview a larger proportion of Maguralis and Lashetas were seen in the grandmultiparous group.

The effect of age at marriage on parity is shown in the figure below revealing a predominance of early marriage in the grandmultiparous group as compared with the control group. 15.1% of the study group were 15 years or below at the time of marriage versus only 7.3% in the control group. A larger proportion of the grandmultiparous group (55.7%) were 16 - 20 years at the time of marriage while the predominant age profile at the time of marriage in the control group was 21 – 25 years (48.2%).

Fig 1: Age at Marriage



The age distribution in the two groups revealed an older age profile in the grandmultiparous group which could be related with age associated medical complications in pregnancy like hypertensive disorders, gestational diabetes, cardiac diseases. Unfortunately, there was lack of data documenting maternal diabetes as screening was not performed on a regular basis. The majority of grandmultiparas (65.1%) were 35 –39 yrs, 10.9% were 30 –34yrs, 16.9% were 40 – 44 yrs and 5.66% were >45yrs. In

the control group 13.6% were 20 –24 yrs, 40.9% were 25 – 29 yrs, 38.2% were 30 – 34 yrs, 7.3% were 35 – 39 yrs and none were >40 yrs. Analysis of antenatal care as shown in the figure below shows a distinctly poorer attendance in the grandmultiparous group with 26.4% of this group documenting absolutely no antenatal care and only 20.8% with 3 – 5 antenatal visits. In the control group 38.2% had 3 – 5 visits and 14.65% had more than 5 ANC visits.

Fig 2: ANC Attendance

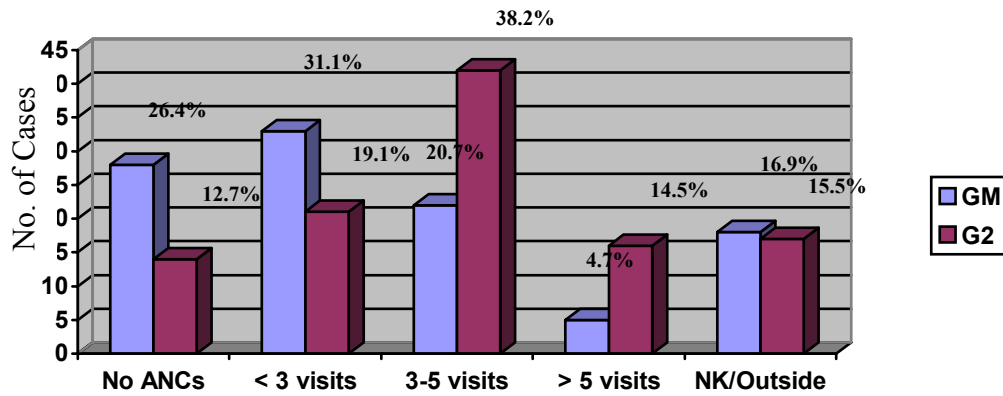


Table 1: Adverse antepartum events

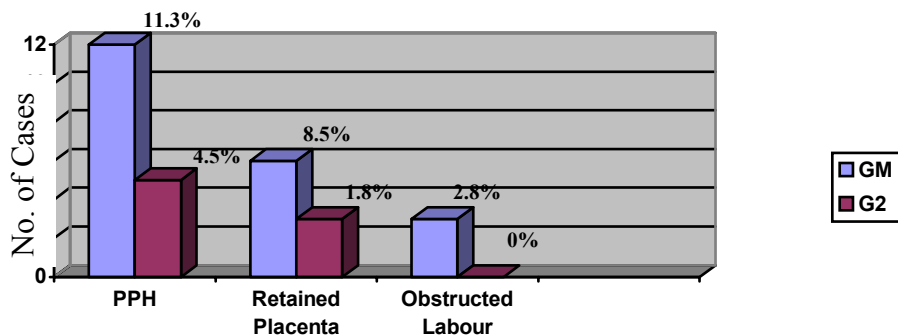
	Grandmultipara	Multipara (G2P1)
PIH / Preclampsia	18 (16.98%)	9 (8.18%)
Eclampsia	0	1 (0.9%)
Preterm Birth	12 (11.32%)	9 (8.18%)
Term IUGR	5 (4.72%)	9 (8.18%)
Anaemia	16 (15.09%)	10 (9.09%)
Malpresentations / Malpositions	18 (16.98%)	8 (7.27%)
Multiple Pregnancy	10 (9.43%)	3 (2.72%)
PROM	15 (14.15%)	7 (6.36%)
APH	3 (2.83%)	2 (1.18%)

The complications in pregnancy seen more frequently in the grandmultipara were hypertensive disorders, preterm delivery, anaemia, malpresentations, multiple pregnancy and PROM as shown in the table above. The mode of delivery in the two groups were compared as shown in the figure below. A slightly higher rate of Caesarean delivery (15.1%) was noted in the grandmultiparous group in contrast to 10% in the control group. Vaginal breech delivery was also slightly higher (3.77%) in the case group versus 2.72% in the control group. Spontaneous vaginal delivery took place in 73.58% of the grandmultiparas

and 79.09% in the control group. The incidence of instrumental delivery was similar with 5.66% in the grandmultiparas and 6.36% in the control group. 2 cases each in both groups had home deliveries.

The complications in labour noted more frequently in the grandmultiparous group were postpartum haemorrhage (11.32%) versus 4.54% in the control group, retained placenta (5.66%) versus 2.72% in the control group and obstructed labour 2.83% versus none in the control group. No cases of rupture uterus was documented in the study groups.

Fig 3: Complications of Labour



A higher incidence of certain puerperal complications noted in the grandmultiparous group were puerperal sepsis (7.54%) versus 4.54% in the control group, secondary postpartum haemorrhage (2.83%) versus 0.9% in the control group and wound infection (4.72%) versus 2.72% in the control group. 4 cases (3.77%) in the grandmultiparous group required blood transfusion, one was a case of retained placenta, one following postpartum haemorrhage and two for pre-existing anaemia. In contrast only one case from the control group required blood transfusion due to postpartum haemorrhage following Caesarean delivery for previous Caesarean delivery

and CPD. Outstandingly, there were no maternal deaths noted in both the study groups. Postpartum tubal ligation was documented in 16 cases of grandmultiparas and none in the control group.

The distribution of infant birth weight in the two groups is illustrated in the Fig. below. The highest number of grandmultiparas (33%) were found to deliver babies with birth weights between 3001-3500gm while the second gravidas predominantly (47.2%) delivered babies with birth weights between 2501 – 3000gm.

Table 2: Infant Birth Weight Distribution

Birth weight	Grandmulti	G2P1
< 1500 gm	6 (5.66%)	2 (1.82%)
1501 – 2000 gm	16 (15.09%)	6 (5.45%)
2001 – 2500 gm	18 (16.98%)	15 (13.63%)
2501 – 3000 gm	20 (18.86%)	52 (47.2%)
3001 – 3500 gm	35 (33%)	30 (27.27%)
3501 – 4000 gm	10 (9.43%)	5 (4.54%)
> 4000 gm	1 (0.94%)	0

The neonatal complications seen in the grandmultiparous group were preterm birth (11.32%) versus 8.18% in the control group, neonatal sepsis (5.66%) versus 3.63% in the control group and birth asphyxia (9.43%) versus 3.63% in the second gravidas. The incidence of term low birth weight babies were seen to be higher in the second gravidas (8.18%) versus 4.72% in the grandmultiparas. 5 perinatal deaths were documented in the grandmultiparous group. 3 were cases of intrauterine death of which one was a case of rhesus isoimmunization, the other two being idiopathic. The remaining two cases were neonatal deaths one following preterm birth at 30 weeks and the other a term IUGR weighing 1950 gm in a patient with preclampsia. In the control group 2 perinatal deaths were noted, one IUD with no obvious cause and the other a preterm birth (29 weeks) weighing 1800gm.

Discussion

A similar study conducted by Hughes PF and Morrison J. in the United Arab Emirates⁴ in 1994 showed no significant increase in adverse antenatal and intrapartum events apart from an increased rate of gestational diabetes in the grand multiparas establishing that in a healthy, economically stable population which could afford modern optimal medical care, grandmultiparity was not a major risk factor and that previous reports primarily reflected

social class factors and not parity per se. Similar results were documented in other studies conducted by Eidelman et al in New York⁵, Samueloff a et al in Jerusalem, Israel⁶, Goldman GA et al in Tel Aviv, Israel⁷, Bugg GJ et al in Manchester, U.K.⁸ and Mwabingu FT et al in Riyadh, Saudi Arabia⁹. These studies have established that in a well placed economic population, besides age related medical disorders, grandmultiparity no longer posed a significant obstetric risk and that risk assessment should be based on past and present history rather than simply parity. At the same time the focus of concern should shift to the organization and delivery of quality medical care.

On the other hand studies conducted in the developing world where rural populations were scrutinized, grandmultiparity continues to be regarded as a high risk situation. A study performed by Aziz Karim S et al in Karachi¹⁰ demonstrated a higher incidence of anaemia, abruptio placentae, postpartum haemorrhage, spontaneous uterine rupture and foetal loss. These findings were supported by another Karachi study conducted by Munim S et al¹¹

A Nigerian study¹² analysing cases of postpartum haemorrhage cited grandmultiparity as the predominant risk factor. Another study on grandmultiparous patients in Nigeria conducted by

Ogedengbe OK et al¹³ documented higher frequencies of anaemia, malpresentations, disproportion and higher caesarean section rates, multiple pregnancy and placenta previa with higher though not statistically significant maternal and perinatal mortality rates. Similar findings were also established by Ozumba BC et al in the University Teaching Hospital in Nigeria¹⁴.

An analysis of indications for Caesarean Section in Warsaw, Poland performed by Ali FA et al¹⁵ showed a significantly higher incidence in grandmultiparas. In Kuala Lumpur, Malaysia Tai C and Urquhart R documented an increased obstetric risk in patients only with parity 7 and above¹⁶. Mor Yosef S et al in Jerusalem, Israel¹⁷ on the other hand compared obstetric performances between grandmultiparas from high and low socioeconomic classes and established a significantly higher risk in those from the low socioeconomic group.

Conclusion

The Nigerian experience as well as others conducted in the developing world including our own have established primarily that higher parity is more frequently encountered in the rural and low socioeconomic population and these compounding factors continue to pose a high risk in the obstetric and perinatal outcome. In the developed world on the other hand, with economically stable populations and modern and effective medical care grandmultiparity no longer is per se considered to increase obstetric and perinatal morbidity and mortality. In our situation, these findings have implications for those planning the provision of obstetric services in the community. The focus must undoubtedly be on provision of accessible and effective National family planning initiatives as well as health awareness of the adverse impact of high parity on obstetric performance. Besides, the general health and socioeconomic consequences of large families should continue to be stressed to our community. Recognising this risk it is also important that trained personnel be available to manage these cases in the likelihood of complications.

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