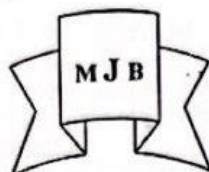


Risk of Grandmultiparity on both Mother and Fetus

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Abstract

The aim of this prospective study was to determine the proportion of grandmultiparae (GMP) among overall deliveries and also to study the maternal and fetal risks as well as labour outcome in association with grandmultiparity.

The study included (421 GMP) as study group (group 1) compared with (421 non-grandmultiparae) (i.e. NGMP) (group 2) as control group.

GMP represent (20.39%) of all deliveries conducted in study period and has very low rate attendance to antenatal clinics than NGMP (15.2% compared to 48.6%).

Antepartum haemorrhage, malpresentation apart from cord prolapse and postpartum haemorrhage were significantly higher among (group 1) compared to (group 2) ($p < 0.01$); whereas rate of labour induction and augmentation were significantly lower with grandmultiparity ($p < 0.01$).

The rate of caesarean section (mainly indicated for prolonged labour and malpresentation) were significantly higher among GMP compared to NGMP ($p < 0.01$). The rate of still births and macrosomia were significantly higher among (group 1).

GMP with eight and more deliveries were distinctly in a more unfavourable situation regarding maternal and fetal risks as well as perinatal outcome.

We concluded that grandmultiparity associated with substantial maternal and fetal risks, increasing maternal and perinatal morbidity and mortality.

This emphasizing a strictly regular antenatal care and adoption of active family planning programs to minimize the burden of grandmultiparity on obstetric services.

الخلاصة

أن هدف هذه الدراسة هو إيجاد نسبة الحوامل ذوات الخمسة ولادات سابقة فما فوق من مجموع كل الولادات الحاصلة في فترة الدراسة (شهر 2/2004 إلى أواخر شهر 1/2004) ودراسة المخاطر الحاصلة للأم والجنين وكذلك نتائج الولادة في تلك الحوامل .

الدراسة شملت (421) حامل لديها خمسة ولادات فما فوق و (421) حامل لديها (1 - 4) ولادة . كانت نسبة الحوامل ذوات الخمسة ولادات فما فوق تشكل (20.39%) من مجموع الولادات الحاصلة في تلك الفترة. (2، 15%) فقط من هؤلاء لديهم رعاية صحية أولية كافية مقارنة ب (6، 48%) في المجموعة الثانية .

أن مضاعفات الحمل كالنزف ما قبل الولادة ، احتلال المقعد واستعراض الجنين هي الأكثر نسبياً في المجموعة الأولى بينما كان معدل الولادة الاصطناعية و الحاجة إلى تسريع الولادة أقل في الحوامل المتعددة الولادة .

لأن معدل العمليات القيصرية كان أعلى في المجموعة ذوات الخمسة ولادات فما فوق وكان أهم الانسحاب هو عدم تقدم الولادة ، نزف ما قبل الولادة ، احتلال المقعد واستعراض الجنين . وهذا أيضاً صحيح بالنسبة لمضاعفات المرحلة الثالثة من الولادة خاصة النزف ما بعد الولادة نتيجة عدم كفاءة تقلص الرحم .

لأن معدل الأجنة المتولدة أو الأجنة ذوات الأوزان العالية هو نسبياً أعلى في الولادات المتعددة . كما أن الحوامل اللاتي لديهن ثمانية ولادات فأكثر هن في وضع أكثر خطورة فيما يخص نتائج الولادة ومخاطر الأم والجنين .

أما نستنتج من هذه الدراسة إلى أن الولادات المتعددة من خمسة فما فوق تكون مصحوبة بمخاطر ترفع من نسبة الوفيات في الأم والطفل لذلك يتطلب توفر رعاية صحية أولية منتظمة والمستحدثات برلمج نملة لنرض تنظيم الأسرة مما يقلل من عبء الولادات المتعددة على خدمات الولادة والصحة العامة.

Introduction

Grandmultiparae (GMP) is defined by the World Health Organization (WHO) as mothers delivering five or more previous viable pregnancies after 24 weeks of gestation.[1]

Parity is one of the major reproductive factors which considered in the evaluation of high risk pregnancy ; so that those who had five and more deliveries scor (2) versus (0) for those who had one- four deliveries.[2]

In developed countries, the percentage of GMP has markedly declined because of family planning programmes.[3] On other hand, in Iraq: GMP is still constituting nearly (20%) of pregnant women attending antenatal clinics.[4]

Cluster analysis of multiparity revealed a close association between five and more deliveries, maternal age in excess of 35 years, maternal obesity, low socioeconomic status and increased incidence of iron deficiency anemia, bad teeth ,varicose veins, haemorrhoids, lumbar lordosis, and backache with or without spondylolisthesis.[5]

Grandmultiparity is associated with variety of maternal, fetal and neonatal complications. Among the maternal complications; there is increased incidence of breech presentation, cord prolapse, multiple pregnancies, caesarean section, placental complications, uterine rupture and postpartum haemorrhage. [5,6]

Fetal and neonatal adverse effects include increased risk of intrauterine death, still birth consequent to coincidental medical illness as hypertension and diabetes which tend

to be more in grandmultiparae as well as congenital anomalies, macrosomia with its sequelae of birth trauma, birth asphyxia and operative deliveries. [7,8]

Subjects and Methods

This prospective study was carried out in Basrah Maternity and Child Hospital from January. 2004 till end of December.2004. (842) pregnant women were included;(421) were GMP and (421) were NGMP.

Information regarding age, parity, gestational age, antenatal care, mode of delivery, 3rd stage complications and birth outcome were collected from all participants in specially prepared questionnaire.

Women with medical diseases complicating pregnancy were excluded from the study in order to identify the role of parity per se on labour outcome.

In both groups, age was adjusted from (30 years) and above to rule out additional risk of age because of the close association between grandmultiparity and age in excess of 35 years and also because the majority of GMP are over 30 years of age .[9]

Statistical analysis was carried out using chisquare test (X).

P< 0.05 was considered statistically significant and P< 0.01 as highly significant.

Results

Throughout the study period; grandmultiparae constitute (20.39%) of all deliveries conducted in Basrah Maternity Hospital.

As shown in Table 1, there were significant differences regarding age, where (63%) of GMP were older

than 35 years of age while (66.7%) of NGMP were younger than 35 years ($P < 0.01$).

(15.2%) of (group 1) had adequate antenatal care compared to (48.6%) of (group 2).

Table 2 presents the obstetric complications; antepartum haemorrhage and malpresentation were significantly higher among GMP (4.0% and 7.4%) compared to (0.7% and 4.5%) respectively in NGMP.

Table 3 shows labour outcome; term pregnancy was significantly higher among (group 1) (88.1% versus 79.8%) unlike postterm pregnancy which was significantly higher in (group 2) (13.5% versus 6.7%).

NGMP required significantly more labour induction and augmentation than GMP(6.1% and 13.5%) compared to (2.1% and 2.9%) respectively.

Mode of delivery showed significant differences between the two groups, with higher rate of caesarean section in (group 1) (11.4%) compared to (6.4%) in (group 2) .

Postpartum haemorrhage caused by uterine atony was significantly higher among GMP (4.5% versus 1.9%) while that caused by genital tract injury, retained

placenta was more likely occur in NGMP

As shown in Table 4, malpresentation and prolonged labour were the main indications for caesarean section in both groups, however the difference was only significant for malpresentation which was higher among GMP compared to NGMP (5.4% versus 3.0%).

Fetal outcome was presented in Table 5. (group 1) showed higher frequency of still birth and macrosomia compared to (group 2) (4.8% and 4.3% compared to 1.1% and 2.1%) respectively .

Accidental haemorrhage represented the most common cause of still birth.

Table 6 shows obstetric complications and fetal outcome in two subgroups of GMP: those who had eight deliveries and more seem to be more risky, as they associated with higher frequency of antepartum haemorrhage , malpresentation, caesarean section, postpartum haemorrhage, (5.1% ,10.3%,15.4% and 5.9%) compared to (3.5%, 6.0% ,9.5% and 3.9%) in those with five - seven deliveries.

Still birth and macrosomia were (7.4% and 7.4% versus 3.5% and 2.8%) in those with five - seven deliveries.

Table I Characteristics of the studied women

		GMP No. (%)	NGMP No. (%)
Age (Years)	30-34	156** (37.1)	281(66.7)
	35-39	157** (37.3)	115(27.3)
	>40	108** (25.9)	25(5.9)
	Total	421(100.0)	421(100.0)
Adequacy of antenatal care	Adequate	75** (15.2)	205(48.6)
	Inadequate	346** (84.8)	216(51.3)
	Total	421(100.0)	421(100.0)

** : $P < 0.01$

Table 2 Obstetric Complications

Complication		GMP No. (%)	NGMP No. (%)
Antepartum Haemorrhage	All	17** (4.0)	3 (0.7)
	Accidental	11** (2.6)	1 (0.2)
	Placenta praevia	6** (1.4)	2 (0.4)
Mal Presentation	All	31** (7.4)	19 (4.5)
	Breech	16* (4.1)	11 (2.6)
	Transverse	9* (2.1)	3 (0.7)
	Cord prolapse	4 (1.0)	5 (1.1)
	Face	2* (0.5)	0 (0.0)
Polyhydramnios		4 (1.0)	2 (0.4)
Oligohydramnios		3 (0.7)	1 ((0.2)

*: P < 0.05

** : P < 0.01

Table 3 Labour outcome

Event		GMP No. (%)	NGMP No. (%)
Gestational Age	Term	371** (88.1)	336 (79.8)
	Preterm	22 (5.2)	28 (6.6)
	Postterm	28** (6.7)	57 (13.5)
Onset of Labour	Spontaneous	412 (97.9)	395 (93.8)
	Induced	9** (2.1)	26 (6.1)
Labour Augmentation		12** (2.9)	57 (13.5)
Mode of Delivery	Normal Vaginal Delivery	367** (87.2)	382 (19.7)
	Caesarean section	48** (11.4)	27 (6.4)
	Forceps Delivery	6 (1.4)	12 (2.8)
Third stage complications	Uterine Atony	19** (4.5)	8 (1.8)
	Genital Tract Injury	0* (0.0)	1 (0.2)
	Retained placenta	0* (0.0)	1 (0.2)
Rupture Uterus		0* (0.0)	1 (0.2)
Maternal Death		1* (0.2)	0 (0.0)

*: P < 0.05

** : P < 0.01

Table 4 Indication of Caesarean Section

Indication		GMP No. (%)	NGMP No. (%)
Antepartum haemorrhage	Accidental	5 (1.2)	1 (0.2)
	Placenta praevia	5 (1.2)	2 (0.4)
Malpresentation	Breech	14 * (3.3)	8 (1.9)
	Transverse	9 ** (2.1)	3 (0.7)
	Cord Prolapse	0 * (0.0)	2 (0.4)
Prolonged labour		12 (2.9)	8 (1.9)
Fetal Distress		3 (0.7)	3 (0.7)

*: P < 0.05

** : P < 0.01

Table 5 Fetal Outcome

Event		GMP No. (%)	NGMP No. (%)
Live births		401 (95.2)	416(98.8)
Causes	All	20** (4.8)	5 (1.18)
	Accidental haemorrhage	9** (2.1)	0 (0.0)
	Cord accident	7 (1.7)	3 (0.7)
	Congenital anomalies	4 (1.0)	2 (0.4)
Multiple pregnancy		9 (2.1)	12 (2.8)
Low birth weight		3 (0.7)	1 (0.2)
Birth weight (grams)	< 2000	7 (1.7)	14 (3.3)
	2000-3000	75**(17.8)	120(28.5)
	3000-4000	321**(76.2)	278(66.0)
	> 4000	18**(4.3)	9 (2.1)
Admission to neonatal intensive care unit		24 (5.7)	21 (4.9)
Congenital Anomalies		5 (1.2)	7 (1.6)
Neonatal Death		6 (1.4)	6 (1.4)

** : P < 0.01

Table 6 Comparison between the two subgroups of GMP

Event	5-7deliveries N=285 (%) No. (%)	>8 deliveries N= 136 (%) No. (%)
Antepartum Haemorrhage	10* (3.5)	7 (5.1)
Abnormal presentation	17 * (6.0)	14 (10.3)
Multiple Pregnancy	7 (2.5)	2 (1.5)
Caesarean section	27* (9.5)	21 (15.4)
Instrumental delivery	4 (1.4)	2 (1.5)
Postpartum haemorrhage	11* (3.9)	8 (5.9)
Still birth	10** (3.5)	10 (7.4)
Macrosomia	8 ** (2.8)	10 (7.4)
Congenital Anomalies	3 (1.7)	2 (1.5)

*: P < 0.05

** : P < 0.01

Discussion

1. Grandmultiparity is still constituting an important proportion of obstetric burden in Basrah as (20.39%) of hospital deliveries during study period were (GMP), a figure which is higher than that in other parts of world as Irland (9%)[10]. Logas (4.11%) [11]. In addition, if we know that around (40%) of all deliveries in Iraq are home deliveries[12], thus the figure of GMP among overall deliveries would be higher. This explained by that Iraq is one of Middle East countries in which there is still tendency to assume large families affected by economical, educational and religious factors .
2. Grand multiparity with short interpregnancy interval is one of the factors associated with reporting pregnancy as unwanted so there is less attendance to antenatal clinics. The present study revealed that (GMP) had low rate of attendance to antenatal clinics (15.2%), a figure comparable to those reported on 1994 (15.1%)[13] and approximated to (20%) reported on 1995.[4] This reflect that efficiency of antenatal services is still below what planned for many economical, cultural and enviromental factors particularly if pregnancy was unwanted or unplanned .
3. Three quarters of GMP (74.34%) were in the age range of 30-39 years. This figure is somewhat lower than the figure of (85.4%) & (91.3%) reported in 1988 & 2003 respectively. [9,14]
4. (Group 1) showed significant increase in the risk of antepartum haemorrhage (4%) as well as malpresentation (7.4%) than (Group 2) This imposed a further risk on the mother and the fetus. This finding is in agreement with that of Beasley (1995),[5] who stated that antepartum haemorrhage was (3 – 7%) as well as malpresentation was (7 – 15%). On the other hand, GMP had lower rate of labour inductin and augmentation

compared to NGMP . This is similar to the observation of Versi E.etal.(1995) indicating that women with longer reproductive age and high parity had lower labour induction as well as augmentation rates.[15]

5. The rate of caesarean section was higher among(GMP) (11.4%) than (NGMP), this agreed the concept that reported by Shamshad Begum (2003) that those with high parity had more emergency

caesearean section rate (21.6%)[14]. while against what was reported by Versi E,etal.(1995) that there was no significant difference between study and control group (7.2 % versus 6.7%) but there was higher rate of instrumental deliveries in group 2 (2.7 % versus 6.1%)[15]

This can be explained that in my study the majority of caesarean sections indicated for antepartum haemorrhage and fetal malpresentation which were more in group 1. Consequently this increase the maternal morbidity in term of hospilitization , anaesthetic complications and infectious morbidity .

6. Postpartum haemorrhage caused by uterine atony was (4.5 %) significantly higher in GMP, approximated to that reported on (2003) (5.6%)[14]. This confirm that postpartum haemorrhage is (4 times) more common in those with high parity.[5]

7. The higher rate of still birth observed among GMP (4.8% vesus 1.1%) indicated the existence of J-shaped association between parity and still birth despite changes in reproductive behaviour, improved access to maternity services and effective perinatal care.[16]

Also; the finding of the increased rate of macrosomia among GMP (4.3 % versus 2.1%) confirms that grandmultiparity is maternal risk factor

associated with macrosomia[8] as well as that parous women were more twice as likely have macrosomic babies.[17]

8. GMP with eight and more deliveries had more unfavourable situation with regard to maternal morbidity and perinatal morbidity and mortality in comparison to those with five-seven deliveries. This is in agreement with that of others,[18]. implying that the more the parity ; the more is the maternal, fetal and perinatal risk. However this finding is in contrary to that of Kaplan B.,et al.[19] of no significant adverse effects of parity even beyond tenth pregnancy.

In conclusion; GMP in Basrah still representing an important burden on obstetric services. The higher maternal and fetal risk associated with grandmultiparity necessitates strictly regular antenatal care. Finally family planning programmers are indispensable in dealing with grandmultiparity.

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