

The Perinatal and Neonatal Outcome in Grand-Grand Multiparous Women, A Comparative Case Control Study

Nabeel Bondagji, MD,FRCS*^{*}

Objective: To evaluate the complications associated with grand-grand multiparity (para 10 or more) including perinatal, intrapartum and neonatal complications.

Methods: From July to December 2004, 202 women who had had 10 previous deliveries or more were identified and compared with a group of 448 women whose parity ranged 2-9 who delivered over the same period. The two groups were comparable in age and in booking status. The two groups were compared, with particular emphasis on antepartum, intrapartum and postpartum complications. The neonatal outcomes were also recorded and compared between the two groups.

Results: The perinatal mortality in the study group was 49.5:1000 and 24.5:1000 in the control group (P 0.002). The rate of cesarean section was 21% in the study group, compared to 13% in the control group. There was no difference between the two groups in the rate of instrumental deliveries, multiple pregnancy, malpresentation, dysfunctional labor, low birth weight, macrosomia or preterm labor. In the study group, 30% had medical complications compared to 15% in the control group. The incidence of placental adverse events was 2% in the study group and 0.5% in the controls. There was a significant increase in the incidence of postpartum hemorrhage in the study group (13.6%) compared to the control group (5%). There was no difference between the two groups in the incidence of congenital anomalies and neuro intensive care unit (NICU) admissions. Apgar scores at 1,5 and 10 minutes were comparable in the two groups.

Conclusions: Extreme parity should be treated with extra-care and should be considered as high-risk pregnancy, particularly in populations with high rate of unbooked deliveries. Our study demonstrates that there is a significant increase in the perinatal mortality, the rate of cesarean section, antenatal maternal medical complications and the incidence of postpartum hemorrhage in this group compared to a control group from the same population.

Bahrain Med Bull 2005; 27(4):

Since its introduction to the medical literature by Solomon, multiparity gained considerable attention from obstetricians because of the described complications associated with repeated child birth, nevertheless the literature has not provided clear cut answers on the performance of the grand multiparous^{1,2}. Reports coming from the developed countries describe favorable outcome, tending to attribute the reported high complication rates to the factor of low socioeconomic

* Assistant Professor
King Abdulaziz University Hospital
Chairman of the Department of Obstetrics and Gynaecology
King Faisal Speciality Hospital and Research Centre
Consultant Perinatologist
Jeddah, Kingdom of Saudi Arabia

status⁵⁻⁷. The majority of stated studies were done on parities more than five and these findings may not be applicable to grand-grand multiparity para 10 and more. On reviewing the literature we were able to identify only a very limited number of studies, that dealt with the perinatal performance in women with ten or more deliveries. Most of these studies do not consider the potential adverse implications of irregular booking status in their final analysis. It was primarily for this reason that we decided to look into the performance in grand-grand multiparous women in a population with a high rate of unbooked deliveries.

METHODS

This case control comparative study was conducted in the Maternity and Childrens Hospital (MCH). During the 6-month study period, July to December 2004, 5,366 women delivered in our hospital. Two hundred and two women with 10 deliveries or more of viable pregnancies (more than 24 weeks of gestation) were identified and considered as the study group. Out of 4487 multiparous women (Para 2-9) who delivered in the same instiution and over the same time period, a control group of 448 multiparous women was selected, to match the study group in age and booking status. All primiparous women were excluded from the study. The medical records of both groups were extracted and comparative analyses were conducted, comparing the pregnancy and the neonatal outcomes in the two groups. The WHO definitions were used to define the different variables.

RESULTS

The two groups were comparable in their age and booking status with 60% being unbooked in both groups. The mean maternal age was 35.4 and 35.2 years in the study and control groups respectively. The perinatal mortality was significantly higher in the study group, 10 out of 202 (49.5:1000), compared to 11 out of 448 (24.5:1000) in the control group (p value 0.002). The rate of cesarean section was also significantly higher in the study group, 21% vs 13% (p value 0.02). The incidence of medical complications in pregnancy, such as pregnancy induced hypertention, preeclampsia ,diabetes mellitus etc, in the study group was double that of the control group (30% vs 15%, p value 0.01). The medical complications encountered are listed in Table 1. There was a four fold increased incidence of placental events (placental abruption and placenta previa) in the study group (2% vs 0.5%), but this did not reach statistical significance (p value 0.1).

Table 1: Medical complications in the two groups

Medical Complications	Study Group	Control Group
Gestational DM	21	22
Anemia	18	21
Pregnancy Induced Hypertension (PIH)	20	23
Asthmatic	2	1
Total	61(30%)	67(15%)

There was a significant increase in the incidence of postpartum hemorrhage in the study group (13.4% vs 5% p value 0.001). The two groups were comparable in the rate of instrumental deliveries (ventouse and forceps) 1% and .98%, multiple pregnancies 1% and 0.8%, malpresentation 2% and 1.9%, low birth weight less than 2500 grams 8% and 9.8%, macrosomia more than 4200 grams 2% and 2.3% and preterm labor 6.2% and 7%, respectively, (Table 2).

Table 2: Perinatal outcomes in the two groups

	Study Group (202)	Control Group (4487)	P. Value
Unbooked	60%	59.8%	N.S.
Perinatal Mortality	49.5:1000	24.5:1000	0.002
Cesarean Section	21%	13%	0.01
Medical Complication	30%	15%	0.01
Placental event	2%	0.5%	N.S.
Postpartum hemorrhage	13.4%	5%	0.001
Intrumental delivery	1%	1.56	N.S.
Multiple Pregnancies	1%	0.8%	N.S.
Malpresentation	2%	1.9%	N.S.
Low Birth Weight	8%	9.8%	N.S.
Macrosomia	2%	2.3%	N.S.
Preterm Labor	6.2%	7%	N.S.

The neonatal outcomes were comparable in both groups regarding congenital abnormalities, 3% in the study group and 2.8% in the control group. The rate of NICU admission and Apgar Scores were similar. There was no significant difference in the puerperal complications (urinary tract infection, mastitis, deep venous thrombosis, etc), 3.5% among the study group and 3.2% in the control group. The length of hospitalization following the delivery did not show any difference between the two groups.

DISCUSSION

The problems of extreme parity seems to be non-existent in the developed countries, apparently because of the small family size that prevails in these societies. However, in certain areas multiple child birth still exists in significant numbers, perhaps related to cultural or religious

beliefs (Mormon). Certainly the Saudi population has one of the highest fertility rates in the world. Multiparity or even grand multiparity are seen frequently in Saudis population. Earlier reports linked multiparity to increasing risk of unfavorable pregnancy outcome¹⁻⁴. These findings were also supported by recent studies that looked into parity as a risk factor⁸. In the current study the investigated population had a high rate of unbooked deliveries, which may further complicate the matter. To avoid the impact of this variable our control group was selected from the same population and the rate of unbooked deliveries was comparable in the two groups. Our study showed a significant increase in the perinatal mortality, the rate of cesarean section, medical complications and postpartum hemorrhage among grand grand multiparous compared to multiparous women in a population with high rate of unbooked deliveries. Maymon et al in their comparative study between two groups of grand multiparous women compared to a grand-grand multiparous group concluded that high multiparity creates higher likelihood of cesarean section, massive hemorrhage and medical complications, even after adjustment of the maternal age⁹. The higher incidence of medical complications was also reported by Lliyu et al¹⁰. These findings are supported by the results of the current study, which revealed the same findings in two groups comparable in maternal age. Other studies confirmed that there is an increase in the perinatal mortality, particularly intrauterine fetal death, when a grand-multiparous group is compared to a lower parity group¹¹⁻¹⁵. This was one of the striking features in the current comparative study. On the other side of the coin, some studies that we could identify in the English literature suggested that grand multiparity in the developed countries with regular perinatal care may not be considered as a risk factor¹⁶⁻²⁰.

This finding may encourage populations with multiparity to adopt this strategy in an effort to reduce the complications associated with extreme parity. Our findings and conclusions are in agreement with what was concluded by Maia et al and Humphrey et al who felt that grand-grand multiparity should still be considered as a high risk pregnancy and advocated the appropriate and adequate antenatal care as an important measure to reduce the perinatal mortality and maternal morbidity^{21,22}.

CONCLUSION

The combination of grand multiparity and the lack of perinatal care (unbooked deliveries) seems to negatively affect the pregnancy outcome. Thus, they should be considered as high risk pregnancies and should be treated with extra care. Our study demonstrates that there is a very significant increase in the perinatal mortality, the rate of cesarean section, the antenatal maternal complications and the incidence of postpartum hemorrhage in this group compared to a control group from the same population. Regular antenatal care may reduce the risks associated with extreme parity, as reported in the developed countries.

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