IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 22, Issue 2 Ser.10 (February. 2023), PP 38-43
www.iosrjournals.org

A Study on Maternal and Neonatal Outcomes of Pregnancies Inmultigravida Attending a Tertiary Care Centre in Goa

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Abstract
Background*:Adverse maternal and neonatal outcomes increase with increasing parity and is a major cause of morbidity and mortality. The acceptance of family planning methods supports the interventions to improve the quality of life in multipara.*
Objectives*: This study is aimed to analyze the maternal and neonatal outcomes of pregnancies in multipara and to assess the acceptancy of various family planning methods*
Materials and methods*: A hospital based cross sectional study was conducted in the Department of Obstetrics and Gynecology in Goa Medical College, for a period of 4 months inmultipara with more than 3 living children. Cases were defined according to WHO criteria and data was collected from records of antenatal visits and hospital records.*
Results*: The prevalence of multigravida with more than 3 children in our study was 2.11%, majority (40.7%). Complications included anemia (48.1%), gestational diabetes mellitus (18.5%), intrauterine growth restriction (11.1%), malpresentations (11.1%), postpartum hemorrhage (18.5%), blood transfusion(18.5%), low birth weight(18.5%), macrosomia(11.1%).*
Conclusion*: Maternal and neonatal complications are higher in this group. There is need to enhance existing governmental policies, socioeconomical development, good antenatal care and early identification and treatment of complications.*
Key words*: Multiparity, gravidity, maternal complications, neonatal complications*

Date of Submission: 04-02-2023 Date of Acceptance: 15-02-2023

I. Introduction

The incidence of higher order multipara has reduced significantly compared to previous years. Multiparous pregnancies were considered at a higher risk of development of complications such as pregnancy induced hypertension, gestational diabetes mellitus, anemia, placental abruption, preterm labor, malpresentation, malposition, fetopelvic disproportion, dysfunctional labor, uterine rupture, intrauterine fetal death, fetal macrosomia, postpartum hemorrhage, operative delivery, and increased risk of maternal and neonatal mortality. Lower socioeconomic status, poor educational qualification, poor knowledge and acceptance of contraceptive measures, religious beliefs, and poor access to healthcare facility in remote village areas have been accepted as few reasons behind the problem. This study is intended to assess the maternal and neonatal outcomes of pregnancies in multipara with 3 or more living children and to suggest methods to improve the outcomes.

Objectives

The aim of this study was to determine the prevalence of higher order multigravida, to assess the maternal and neonatal complications of pregnancies in them and to suggest on measures to improve the maternal and perinatal outcomes.

II. Materials and Methods

A cross sectional study was conducted in the Department of Obstetrics and Gynecology at Goa Medical College for a period of 4 months (September 2022-December 2022) after participants consent. In this study, we included all multigravida with 3 or more living children and reporting to the center for confinement during this study period.

Exclusion criteria were multigravida with less than 3 living children, women with serious medical illness and women who did not consent to participate in the study.

A detailed assessment including history of antenatal visits was taken and case file reviewed. The risk factors and obstetric complications such as gestational diabetes mellitus, hypertension, thyroid disorders, anemia, heart disease, placenta previa, previous LSCS, intrauterine growth restriction as well as other medical disorders such as bronchial asthma, epilepsy, chronic diseases involved were assessed. The admission for the current delivery, course of labor, intrapartum events (fetal distress,malposition,prolonged labor etc.), postpartum events (postpartum hemorrhage, perineal injuries, need for ICU care) and perinatal outcomes (birth weight, APGAR score at 5 min,need for NICU care,neonatal death) were recorded.

Written informed consent was obtained from all parturients who met the inclusion criteria.
The data was analyzed using the latest SPSS software and Microsoft excel sheet.

III. Results

The total number of deliveries during the study period was 1278.Out of which 27multigravida with 3 or more children were identified and a prevalence of 2.11 % was obtained. Majoritywere gravida 4(51.85%) and para 3(70.3%). The highest order multigravida included in this study was G7P6L5.The number of existing living children were 3 in majority (85.1%).

Table 1: Gravidity

Gravidity	Number of cases (n=27)	Percentage
Gravida 4	14	51.85%
Gravida 5	8	29.62%
Gravida 6	2	7.40%
Gravida 7	3	11.1%

Table 2: Parity

Parity	Number of cases(n=27)	Percentage
Para 3	19	70.3%
Para 4	6	22.2%
Para 5	1	3.7%
Para 6	1	3.7%

Table 3: Living

Living	Number of cases (n=27)	Percentage
Living 3	19	70.3%
Living 4	6	22.2%
Living 5	2	7.4%
Living 6	0	0

Table 4: Number of antenatal visits

Number of antenatal visits	Number of cases(n=27)	Percentage
No visits	2	7.4%
1 visit	3	11.1%
2 visits	9	33.3%
3 visits	2	7.4%
4 visits	2	7.4%
5 visits	4	14.8%
6 visits	4	14.8%
7 or more visits	1	3.7%

Table 5:Complications in pregnancy*

Complications in pregnancy	Number of cases(n=27)	Percentage
No complications	4	14.8%
Anemia	13	48.1%
Gestational Diabetes Mellitus	5	18.5%
Hypertension	2	7.4%
Hypothyroidism	3	11.1%
Intrauterine growth restriction	3	11.1%
Placenta Praevia	0	0
Abruptio placenta	0	0
Malpresentation	2	7.4%
No Antenatal visits	4	14.4%

*More than 1 complications were recorded in some cases.

Majority of the multipara included in the study underwent normal vaginal delivery (81.4%). LSCS was done in 14.8% cases due to various indications like malpresentation, acute fetal distress and meconium-stained amniotic fluid in early labor and Vaginal Birth after cesarean section (VBAC) in 3.7% cases.

Table 6:Intrapartum complications*

Complications	Number of cases (n=27)	Percentage
Moderate anemia	2	7.4%
Blood transfusion	2	7.4%
Shoulder dystocia	2	7.4%
Malpresentations	3	11.1%
Cord prolapse	0	0
Rupture uterus	0	0
Obstructed labor	1	3.7%
Prolonged labor	0	0
Acute fetal distress	1	3.7%
Meconium stained amniotic fluid	1	3.7%
No complications	15	55.5%

*More than 1 complications were recorded in some cases.

Majority of the women did not have any intrapartum complications (55.5%) while moderate anemia, need for blood transfusion and shoulder dystocia was recorded in 7.4%. Acute fetal distress and meconium-stained amniotic fluid was noted in 3.7% of the cases and underwent emergency caesarean section for the same.

Figure1:Mode of delivery

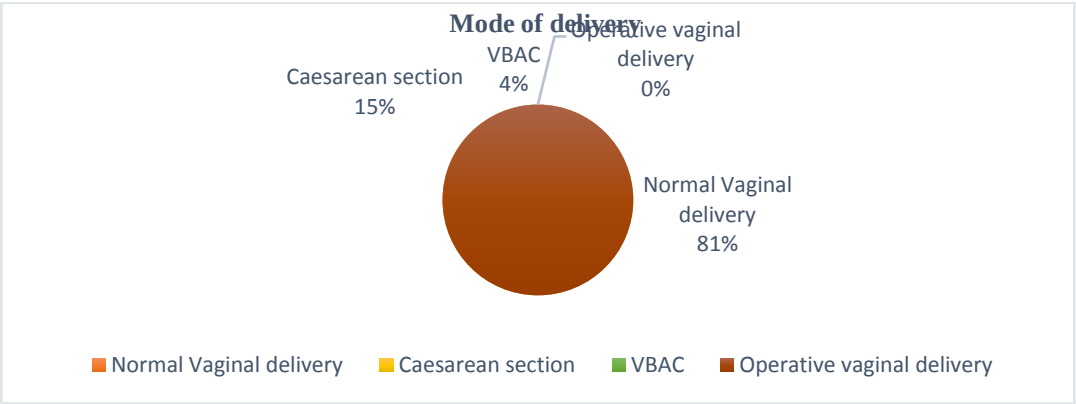

Table 7:Post-partum complications *

Post-partum complications	Number of cases (n=27)	Percentage
Post-partum hemorrhage	5	18.5%
Anemia	1	3.7%
Blood Transfusion	5	18.5%
Perineal tear	1	3.7%
Wound infections	0	0
Maternal death	0	0
Shock	0	0
Obstetric Hysterectomy	0	0
No complications	18	66.6%

*More than 1 complications were recorded in some cases.

Majority of the cases did not develop any complications in the postpartum period (66.6%) whereas most threatening complications such as postpartum hemorrhage was noted in 18.5% cases, and all received blood transfusion (18.5%). No cases of maternal shock or severe uncontrolled postpartum hemorrhage warranting obstetric hysterectomy was recorded during the study period.

Table 8: Neonatal Outcomes*

Outcomes		Number of cases(n=27)	Percentage
Birth weight			
	>4kg(macrosomia)	3	11.1%
	3-4kg	9	33.3%
	2.5-3kg	10	37.0%
	2-2.5kg (low birth weight)	4	14.8%
	<2kg (low birth weight)	1	3.7%
Apgar score <7 at 5min		0	0
Prematurity		1	3.7%
Still birth		0	0
Neonatal ICU care		1	3.7%
Low birth weight		5	18.5%
No complications		20	74.0%

*more than 1 complications were noted in some

Majority of the cases did not develop any neonatal complications (74.0%). Apgar score at the end of fifth minute was taken and all babies of the mothers included in the study had Apgar score of 10 at the end of 5th minute. Prematurity was recorded in 3.7% and low birth weight in 18.5% of the neonates.

IV. Discussion

A cross sectional study was conducted in multigravida with more than 3 living children who attended the Department of Obstetrics and Gynecology for delivery for a period of 4 months.Ours is a tertiary care center and has a high intake of patients which includes women from northern and northeastern states of India like Uttar Pradesh,Bihar,Orissa,Jharkhand residing with their family in our state for the purpose of occupation of their spouse. The number of deliveries conducted in this period was 1278 which included both caesarean sections, normal vaginal delivery, and operative vaginal delivery.

The prevalence of multigravida (Gravida4 Para 3 Living 3 and above) was recorded to be 2.11% in the current study which is less compared to studies conducted in India [10.75% Indrani Roy et al(2),5.3% Alsammani et al(3) and outside India 9.5% in Tanzania(4).The decreasing prevalence could be explained possibly due to acceptance of family planning measures including permanent methods. Women after delivery of 2 children are encouraged to undergo tubectomy as a permanent family planning method, especially multigravida who deliver the second baby or more by caesarean section are encouraged to undergo simultaneous tubal ligation.

Majority of the study population were unbooked cases (55.6%) which is more than other studies(7). On reviewing the antenatal visits, majority of the multipara in this study had less than 2 visits (51.8%) which is comparable to other studies as done by Muniro et al where 52% had less than 4 visits(4).The probable reason could be the difficulty in pregnant women to leave their children alone at residence to approach health facility for antenatal visits and poor transportation facility to approach distantly located health facility at their native villages.

In our study, as it has been conducted in a tertiary care center with facility of obstetrician, anesthesiologist, operation theatre facilities, blood bank facilities 24x7, even though complications were expected and higher than primigravida, the management of the patient and reduced morbidity and mortality could be achieved in a fair manner. Many studies showed that though the incidence of complications in the antenatal, intrapartum, and postpartum period are higher in multigravida and grand multigravida, if the facilities available are good enough, the maternal and perinatal mortality is significantly reduced(8)(9). Our study intends to insist on delivery of multigravida with higher parity in a tertiary care center in order to manage the expected complications.

The risk of anemia is higher in this study as well as in other studies compared(10). Lower socioeconomic status, repeated childbearing and narrow interpregnancy interval causes depletion of iron stores and predisposes to anemia. Mostmultigravida in this study are either unbooked cases or booked later, hence most of them are already anemic during the antenatal visits.

The incidence of gestational diabetes mellitus and hypertension continues to be higher being 18.5% and 7.4% probably due to advancing maternal age and parity.Other studies reveal more incidence of pregnancy induced hypertension than gestational diabetes in grand multipara(11).A low prevalence of hypertension in the current study could be probably attributed to the lesser antenatal visits in grand multipara which were opportunities to detect rising blood pressure which would have warranted administration of antihypertensives.A higher detection rate of Diabetes is attributed to the screening at the 1st visit itself which may be the only visit in the current pregnancy in these women.A lack of follow-up due to various reasons probably could bias the lower incidence of various other medical disorders.

The majority of our study population were delivered by normal vaginal delivery (81.4%) which is much higher compared to other studies(41.2% in study by Abdelmageed et al)(12).Caesarean section rates is 14.8% in the current study which is much lesser compared to most studies(12)(6)

Post-partum hemorrhage remains to be higher with an incidence of 18.5% compared to other studies(3,13).However the morbidity was not severe as the blood was kept crossmatched ready prior to delivery in all possible cases.

Blood transfusion was given to 18.5% cases in the current study in view of postpartum hemorrhage and moderate anemia. Though the incidence of the receiving blood transfusion is higher compared to other studies(14), it is worth mentioning the fact that those women at high risk for post-partum hemorrhage received their treatment on time and hence preventing the morbidity of the patient.

More serious complications such as rupture uterus, obstetric hysterectomy was not recorded in this study, could be probably attributed to the judicious use of labor induction and augmentation agents, appropriate monitoring of the women during labor and preparedness to mitigate expected complications such as post-partum hemorrhage.

Neonatal outcomes such as low birth weight attributed to 18.5% which is slightly higher than study conducted by Mgaya et al (16%)(11).Apgar score <7 at 5 min were not recorded in any of the babies delivered here, probably suggesting a well monitored intrapartum period and improved neonatal resuscitative care. Few studies mention a higher rate of poor Apgar in grand multipara(15).Prematurity and neonatal intensive care unit admission was lesser in the current study (3.7% each) when compared to other studies(12)

V. Conclusion

The maternal and neonatal risk factors and complications are higher with increasing age and parity. However, with adequate antenatal surveillance, fair intrapartum and postpartum care with preparedness for mitigation of complications, the outcome can be improved significantly. Though our health care system provides facilities for reproductive and child health care, a sincere check on the provision of the available resources as well as confirming their utilization among the indented population can reduce the development of complications to a greater extend.

Limitations

The study was conducted for a short duration period and hence a few expected complications were not reported in this study.The number of subjects reported in this study is lesser due to various socioeconomic factors which are not included in this study. The Obstetric outcomes of women in a tertiary care centre differs

from lower centres like primary and secondary health care centres hence needs caution when generalizing the results to the general population.

Conflicts of interest
The authors declare that there was no conflicts of interest regarding the publication of this paper.

Funding
The author(s) received no financial support for the research, authorship and /or publication of this article.

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Dr. Sandra Marie Joe, et. al. "A Study on Maternal and Neonatal Outcomes of Pregnancies Inmultigravida Attending a Tertiary Care Centre in Goa." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 22(2), 2023, pp. 38-43.