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GRANDMULTIPARITY – STILL AN OBSTETRIC RISK FOR DEVELOPING COUNTRIES.

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ABSTRACT:

OBJECTIVE: *To compare the intrapartum complications and neonatal outcome among grandmultipara to evaluate the risk .*
DESIGN: *Cohort study*
PLACE AND DURATION OF STUDY: *Gynae unit iv Lyari General Hospital from March 2009 to Feb 2009*
PATIENTS AND METHOD: *Two groups of multiparous parturients 100 in each group (Grandmultiparous >5 versus multiparous parity between 2-4) who fulfilled the inclusion criteria were studied and compared for intrapartum complications (e.g malpresentations, placental abnormalities, postpartum hemorrhage, shoulder dystocia). Neonatal records were also examined to determine the neonatal morbidity and mortality. Data was analyzed using the 95% confidence interval analysis by SPSS version 17.*
RESULT: *Grandmultiparity comprises 33.64% of our total obstetrical admission. Grandmultiparity significantly associated with low educational status [RR 1.54,95%CI (0.98-1.95)] poorer prenatal care [RR 3.31,95%CI (2.04-5.4)] and increased maternal age [RR2.2,95% CI(1.55-3.01)] .Grandmultiparous had more intrapartum complications included obstructed labour [RR 1.5,95%CI(1.0-2.2)], Malpresentations [RR1.7,95%CI(1.2-2.3), shoulder dystocia [RR2.02, (1.8-2.3)], abruption [RR1.76 (95%CI1.3-2.5)] and post partum hemorrhage [RR1.68 (1.25-2.26)] Perinatal mortality was higher in grand multiparous group compared to control multiparous women. PMR was –23.91% and-10.46% respectively.*
CONCLUSION: *Thus in conclusion our study adds weigh to the overall view that in a low socio-economic background and poor health setting grandmultiparity is still associated with a significant increased risk of classical complications said to be associated with grandmultiparity .Concerted effort should be directed for effective family planning initiatives and specialised antepartum and intrapartum management.*

KEY-WORD: Grand multiparity, intrapartum, complications, neonatal outcome, obstetric risk, developing countries.

INTRODUCTION:

The international federation of gynaecology and obstetrics(1993) define grandmultiparity as delivery of the fifth to ninth viable pregnancies[1,2,3,4],whereas women who are undergoing their tenth (or more) delivery are considered to be great grandmultiparous[3].The term grand multipara was introduced in 1934 by Solomons who called the grandmultipara the "Dangerous multipara"[2,3,4].In developing countries incidence of (GMP) grandmultiparity is between 10%-30%[5].While in developed countries grand multiparity is becoming rare3-4%of all births[6].In Pakistan incidence of GMP along with its complications is still high[1]. Grand multiparity continued to be regarded as high risk factor[7]and challenge for obstetric practice in the developing world[5].Grandmultiparity is one of the major contributing factor in increasing maternal mortality[1].The known antepartum complications in the grand multiparas are increased risk of miscarriage, anaemia, multiple pregnancy, malpresentation,ante-partum haemorrhage, preterm labour, medical complications such as diabetes, hypertension are seen to complicate these pregnancies more than those of lower parity because of increasing age[1,8,9] .In labour malpresentation ,fetopelvic disproportion. dysfunctional labor, postpartum haemorrhage, uterine rupture, instrumental delivery[4],increasing risk of operative delivery and puerperal complication are more frequently encountered[1,3].The neonate of the grand multiparas at a higher risk of birth

weight, preterm birth, congenital malformation and neonatal intensive care unit stay[5].

Many studies have explored the relationship between grandmultiparity and obstetric complications and the result of these studies have been mixed[4].A critical evaluation of these studies showed that many of the populations studied belonged to low socioeconomic status with inadequate access to modern perinatal care as well as increased maternal age[1,6,7,10].There have been some recent studies that indicate that grand multiparity is not an independent risk factor for adverse outcome in setting of high socioeconomic status and high standard perinatal care .In our setting due to early marriage and lack of contraception incidence of grandmultiparity is very high[3].The main purpose of this study was to examine that in our setup whether grandmultiparous women were at increased risk of intrapartum and neonatal complications in comparison with women having previously given birth of two or three babies.

PATIENTS AND METHOD:

In this study two groups of multiparous parturients (grand multiparous parity>5 versus multiparous parity between2-4) were included who delivered between the period from March 2008 to Feb 2009 at Lyari general hospital. Total 100 grand multiparous were analysed for intra partum and neonatal complications. The control were 100 multiparous women para 2-4 who delivered during the same period. Women with multiple pregnancies, parity less than two, age less than 18 years were excluded .Main variables of measure included mode of delivery, intra partum and neonatal outcome and complications. A proforma was compiled by the house surgeon on the admission of each patient. Informed consent was taken .The ethics committee of the hospital approved the study .A detailed history was taken including age, parity, socio-economic status ,educational status, preexisting illness, complication during pregnancy. Intra partum complications which included placental abruption, dysfunctional labor, malpresentation , placenta praevia , cord prolapsed , fetal distress, operative delivery and postpartum hemorrhage were recorded. Neonatal records including birth weight, apgar score at birth, congenital malformations and neonatal ICU admission were noted. Diagnosis of fetal distress was based on fetal heart rate irregularities and passage of meconium in non breech presentation and confirmed on ctg .Perinatal mortality was defined to include stillbirth after 20 wks of gestation and neonatal deaths(deaths within the first 28 days).Early neonatal deaths were defined to include death from 0-06 days.The data collected in the study were analysed and compared with result of 100 multiparous women of parity 2-4 using the 95% confidence interval analysis by SPSS version 17 .Relative Risk were calculated to compare the risk of

TABLE-1: PATIENTS DEMOGRAPHIC DATA

Demographic Data	Para 5-9 (GMP) n=100	Para 2-4 (NGMP) n=100	Relative Risk (95% Confidence Interval)
Maternal Age			
18-30	29%	63%	————————-
31-40	62%	29%	2.2(1.55-3.01)
>40	09%	06%	1.9(1.1-3.2)
Antenatal Booking			
Booked	14%	56%	————————-
Unbooked	86%	44%	3.31(2.04-5.4)
Educational Status			
No Education	86%	74%	1.54(0.98-2.4)
Primary to Sec	14%	26%	
Mode of Delivery			
Vaginal Delivery	86%	93%	1.39(0.99-1.95)
Cesarean Section	14%	07%	

TABLE-2: INTRAPARTUM COMPLICATIONS

Complications	Para 5-9 (GMP)	Para 2-4 (NGMP)	Relative Risk (95% Confidence Interval)
Obstructed labour	08	03	1.5(1.0-2.2)
Dysfuntional Labor	18	08	1.5(1.1-2.0)
Malpresentation	09	02	1.7(1.2-2.3)
Cord prolapsed	01	0	2.01(1.7-2.3)
Shoulder Distosia	02	0	2.02(1.8-2.3)
Abruptio Placenta	06	01	1.76(1.3-2.5)
Choriomnitis	03	01	1.52(0.8-2.7)
Postparum hemorrhage	12	03	1.68(1.25-2.26)

Table-3: NEONATAL OUTCOMES

Neonatal Outcome	Para 5-9 (GMP)	Para 2-4 (NGMP)	Relative Risk (95% Confidence Interval)
Birth Weight			
<2.5kg	04%	14%	0.26(0.2-1.01)
>4kg	20%	06%	1.67(1.3-2.2)
Neonatal Mortality			
IUD	04%	02%	1.35(0.7-2.41)
Still Birth	07%	03%	1.43(0.9-2.2)
Early Neonatal Death	05%	02%	1.45(0.9-2.4)
Congenital Malformations	04%	03%	1.15(0.6-2.2)
Apgar Score	12%	07%	1.3(0.9-1.9)

complications between multiparas .Differences in proportions were presented as percentages .

RESULT:

There were total 844 obstetrics admissions and 669 births during the 12 month study period from which 100 patients selected in grand multiparous group and 100 in multiparous group,who fulfilled the inclusion criteria. .The grand multiparity comprises 33.64&% of our total obstetric admissions and 42.45% of total births..Demographic characteristics of both groups are presented in Table 1.The grand multiparity significantly associated with low educational status [RR 1.54,95%CI(0.98-1.95)],poorer prenatal care [RR 3.31(2.04-5.4)],and increased maternal age .Majority were older than 30 years [RR2.2,95%CI91.55-3.01).The mean parity in the study group was 06 compared with 03 in the control group.

The result showed higher incidence of anemia 92% versus 86%, hypertension 19% versus 7%, preterm labor 11% versus 09%, diabetes mellitus 15% versus 06%, IUGR 2% versus 09%, Polyhydraminos 4% versus 0, postmaturity 13% versus 04% and placenta previa 07% versus 03%. Overall 86% patients delivered vaginally in GMP group 93% in multiparous group and there were significantly fewer elective and emergency caesarean section in the multiparous group[RR 1.39,95%CI(0.99-1.95).

Intra partum complications most commonly thought to be associated with grand multiparity are shown in Table II .The significantly increased risks observed when grandmultiiparas were compared with multiparas for the following Complications during labor included obstructed labour [RR 1.5, 95%CI (1.0-2.2)], Malpresentation [RR1.7,95%CI(1.2-2.3),shoulder dystocia[RR2.02,(1.8-2.3)], abruption [RR1.76(95%CI1.3-2.5)] and post partum hemorrhage [RR1.68(1.25-2.26)]. There were no cases of uterine inversion ,rupture uterus and maternal deaths in either groups thus relative risk could not be calculated.

Perinatal outcome are presented in Table 3 .Perinatal mortality was higher in grandmultiparous group compared to control 23.91% and 10.46% respectively .There was 5% case of neonatal death in study group and 2% in control group[RR1.45,95%CI(0.9-2.4),while still birth was 7% vs3%[RR1.43,95%CI(0.9-2.2)and IUD 4% vs2%[RR1.35,95% CI(0.7-2.41)].Mean birth weight was significantly higher in GMP than multiparous group[RR1.67,95%CI(1.3-2.2)].Congenital malformations were 4%in GMP and 2% in mgrandmultiparity [RR 1.15,95%CI0.6-2.2). Grandmultiparous group had Low apgar score 12% vs 7%]RR1.3(0.9-1.9)].

DISCUSSION:

For many decades pregnancies in grandmultiparas have been considered risky for both mother and fetus although recent studies indicate that with proper prenatal care ,women with high parity rates are no longer at high risk but In developing countries grandmultiparity continues to be regarded as a high risk situation and can present with various complications[2,5.] .

The study demonstrates that in our setup women who had previously delivered five or more babies have a significantly increased incidence of complications particularly in the intrapartum period compared with women who had previously delivered two or three babies.Our data also support Solomon's assertion that "It is altogether a mistake to suppose that in childbearing practice make perfect ,they also noted that higher the parity greater the risk[7].

The grandmultiparity comprises 33.64% of our total obstetric admission, the incidence was alarming high from the developed countries and slightly greater from shamshad begum who reported 26%.In our study mean age of grandmultiparas was significantly high compared with control group and this is in conformity with the data by Khadija H A [2].Advanced maternal age is an independent risk factor for a number of antenatal medical disorder e.g hypertension ,GDM ,placenta praevia ,placental abruption ,mal presentation ,cesarean delivery and prematurity ,which potentially influence both maternal and neonatal morbidity and mortality .This is in contrast with the data of A.S Kumari who concluded that women with advanced maternal age who were delivered in a modern tertiary centre may be no higher risk .We did not attempt to match for age because grandmultiparity invariably associated with advancing age and final outcome would be a combined effect of both variables also revealed by A.S Kumari[7,2] .In this study grandmultiparas had significantly poor socioeconomic status ,lower level of education and poorer antenatal care as in previous studies [1,2,6] .

As such ,grandmultiparas should be considered as requiring special antenatal care[10].In contrast study conducted in Arabic and Jewish populations reitriterates that in population with access to modern health care facilities and are relatively stable socio-economic status grandmultiparity can pose no increased risk for mother .High socioeconomic background ,however are not a prerequisite for favorable results and in contrast to our study Toohey reported highly favorable outcomes in a group of women with low socioeconomic status[3].In addition BMI was higher among grandmultipara than their same counterparts in accordance with data reported by Bugg et al[3] and Horace Roman[6].

Our study was not devoid of limitations, data may suffer from data errors, under reporting of complications and failed to account for possible confounders, such as maternal age and adequacy of maternal care. Grandmultiparas still remained at higher risk for obstetricians .Various hazards are associated with grand miltiparity including ante partum as well as intra partum complications .Inadequacy of maternal care and maternal age might account for the difference in frequency of medical complications .In our study we compared the risk of intra partum complications, neonatal morbidity and perinatal death between the two groups and our findings show that grandmultiparity are at increased risk for most intra partum and neonatal complications compared with multipara .Our study confirmed the findings of Israel which reported an increase in classical complications said to be associated with grandmultiparity .

There are conflicting result about the ante partum and intra partum risk of grand multiparity .The overall intra partum /ante partum complications incidence in our analysis for grand multiparas women was significantly different from that of the control multiparous women .Several reports from Israel and Hispanic populations revealed no increased incidence of intra partum complications .The high incidence of preterm delivery, anemia, hypertension ,gestational diabetes ,abruptio placenta and multiple pregnancy were similar to other published studies[1,2,6,8] .In contrast studies conducted in a modern health care setting reported that antepartum complications among grand multipara did not increased[2,4,9,].Although age related risk of grandmultiparity like obesity ,chronic hypertension .gestational diabetes ,ante partum hemorrhage and macrosomic infants pose a great threat to mother and fetus .Mukhtar Aliyu also encountered significantly higher rates of antepartum complications in the study group[9].

Intra partum complications like dysfunctional labor was seen in 18%GMP group vs 8% in multiparous group is in conformity with the other data[1,2,9.].On the contrary Horace Roman did not find increased intra partum risk or dystocia situations[4].Fetal mal presentations was(9% vs 2%) lower than reported by Shamshad Begum i-e

(14.7%).The incidence of Abruptio Placenta was (6% vs 1%),Cord Prolapsed (1% vs 0%),Post Partum hemorrhage (12% vs 3%) and Caesarean Section rate was higher in GMP group than Multiparous group similar to other studies[2,6] .Unlike Sara H et al and others did not have increased intra partum risk[4,11]These authors found better obstetric mechanism at delivery than others .Outstandingly there were no maternal death in both the study groups .This is conformity with the data of Mukhtar H et al and Roshan Rayamajhi[5,9].

We found a difference in cesarean delivery rate between study and control group i-e (14% vs 7%) and this difference was associated with an increase incidence of obstructed labor ,fetal mal presentations ,neglected transverse lie and Placenta praevia. Uterine atony ,which may be responsible for 50% of postpartum hemorrhage cases is suspected from a decline in the uterine contractility after many previous pregnancies .We also found a tendency for higher incidence of uterine atony in study group[10],this result agree with that of study of Khatija and Shamshad[1,2].None case of uterine rupture was found in both groups .In contrast in similar analysis by Bugg et al &Horace Roman found a lower incidence of uterine atony in GMP group. Postpartum hemorrhage and blood transfusion rates were reported as more frequent in grand multiparas than multiparas ,these differences may be attributed to inter hospital policies of reporting and blood transfusion .The major cause for increased maternal morbidity were obstructed labor, post partum hemorrhage ,sepsis and anemia.

Macrosomia is responsible for intra partum complications like birth trauma ,shoulder dystocia ,birth asphyxia ,obstructed labor and increased rate of instrumental delivery[1] .In our study the highest number of grandmultipara (20%) were found to deliver babies with birth weight 3001g-3500%while multipara predominantly 6% and remaining delivered between2501gm-3000gm.Similar results were documented in other studies[5.9] .Macrosomia have been the combined effect of increasing parity ,maternal obesity or diabetes ,and the independent influence of GMP alone was not assessed in our study.

No significant difference were found among the both groups for perinatal death .According to Y.Ezra et[10] al perinatal mortality rate in GMP group was extremely high when compared to control group .This high rate was not related to an increase in the incidence of lethal malformationsThe reported incidence of intrauterine death in GMP is 5.2%.Our incidence was 4% vs 2%,Stillbirth accounted for 7% vs 3%,Neonatal death5% vs 2% .Major contributing factor for neonatal morbidity was birth asphyxia Perinatal morbidity and mortality rate was higher in grand multiparous group as compared to Multiparous group[1,2,10].In our study increase incidence of intrauterine fetal death ,IUGR and abruptio placenta were major cause for increase perinatal mortality, which is comparable with other study[1].An increased frequency of fetal or perinatal deaths could be related to the significant difference in parity between the study and control group .However this difference in parity could not be the only explanation for the significant differences in perinatal deaths.

The marginal increase in the still birth among GMP in our study was mainly contributed by defaulters, who failed to attend the regular antenatal checkup and by women who presented for the first time in labor ,this may be due to erroneous presumption among the women that practice has made them perfect.

CONCLUSION:

The study shows that GMP are still an obstetric hazard and can present with various complications. Ante partum surveillance and anticipation of complications during labor and delivery may reduce the complications in GMP. The focus of concern should shift to the organization and delivery of quality medical care ,provision of accessible and effective family planning initiatives as well as health awareness of adverse impact of high parity on obstetric performance.

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