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Research Article

Association of Severe Gestational Hypertension with Low Birth Weight in Advanced Maternal Age

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ABSTRACT

Introduction: The demographic shift towards later child bearing has become a major clinical and common health concern because advanced maternal age has been associated with poor pregnancy out-comes. Advanced maternal age at birth has been found to be associated with gestational hypertension, gestational diabetes, pre-eclampsia, placenta previa, CS, placental abruption, preterm delivery, low birth weight, intrauterine fetal death and increased peri-natal mortality.

Objective: To determine the frequency of maternal outcome (pregnancy induced hypertension) and fetal outcome (low birth weight and 5-minute Apgar score <7) among pregnant patients with age >35 years.

Study Design: This was a Descriptive study.

Setting: This Study was conducted in Gynaecology and Obstetrics department, Bolan Medical Complex Hospital, Quetta.

Duration of Study: Six months duration from 05 December 2019 to 04 June 2020.

Sampling Technique: It was non-probability consecutive sampling.

Methodology: A total of 84 patients who fulfilled the inclusion criteria were selected for this study informed consent was taken from all the patients. All the details including age, parity, gravidity and Body Mass Index (BMI) were noted. They were followed up during pregnancy after every 4 weeks and were assessed regularly. They were delivered as per obstetrical merits and mode of delivery was noted. After birth, fetal outcome was assessed. SPSS version 24 was used for data analysis.

Results: Total 84 patients were included in this study. The mean age of the patients was found to be 39.34 ± 2.73 years. Most of the patients had gestational age ≤37 weeks. The mean gestational age was 37.44± 2.16 weeks. The mean parity of patients was found as 3.1 ± 1.56. The main outcome of the study was maternal and fetal outcome. Most frequent outcome was Pregnancy induced Hypertension which was found in17 patients (20.23%), followed by low birth weight (13.09%) and 5-minute Apgar score <7 (4.76%).

Conclusion: The frequency of maternal and fetal out comes and complications were quite

higher among women with advanced age groups ie Pregnancy Induced Hypertension, low birth weight, DMII. PE, SB, MC, CS.
Key Words: Maternal, Fetal, Outcome. Pregnancy Induced Hypertension, Advanced maternal age, Apgar score.

INTRODUCTION

Advanced maternal age, usually defined as pregnancy at the age of 35 years and over, has also become increasingly common in other developed countries.

Despite declining fertility over all in the USA, births to women over 40 continue to rise and the age first birth has increased from 21.4 in 1970 to 25.4 in 2010[1].

In Australia, of women having their first birth, 42% were over 30 and 15% over 35 in 2008[2].

Advanced maternal age at birth has been found to be associated with gestational hypertension, gestational diabetes, pre-eclampsia, placenta previa, CS, placental abruption, preterm delivery, low birth weight, intrauterine fetal death and increased peri-natal mortality[3].

It has been shown that pregnant women aged 35 years or older experience an increased risk of intrauterine fetal death, pregnancy-induced hypertension, gestational diabetes, and delivery by cesarean, low birth weight, Apgar score less than seven[4].

In a study it was found that Gestational Diabetes Mellites was observed in 15/100 patients (15%) and pregnancy induced hypertension was observed in 15/100 patients (15%) , low birth weight and 5-minute Apgar score <7 undergoing pregnancy after age of 35 years[5].

Pregnant women aged over 40 are no longer uncommon, and the question is now whether advanced maternal age increases the risk of pregnancy and results in poorer obstetrical outcomes [6].

Several studies have tried to examine the relationship between maternal age and pregnancy outcome, but most studies have reported contradictory results with regard to advanced maternal age [7].

There is a continuum of risk for both mother and baby with rising maternal age with numerous studies reporting multiple adverse fetal and maternal outcomes associated with advanced maternalage[8].

Regarding fetal outcome, low birth weight was observed in 168/1804 (9.8%) while 5-minute Apgar score <7 was observed in 62/1804 (3.6%) of patients undergoing pregnancy after age of 35 years[9].

Obstetric complications including placental abruption, placenta previa, malpresentation, low birth weight, preterm and post– term delivery and post-partum hemorrhage, low birth weight, less than seven Apgar score are higher in older mothers[10].

The rationale of the study is that like all over the world, in Pakistan also, the age of marriage is increasing and hence the childbirth in advanced age is also on rise. Therefore, it is important to know the exact fetal and maternal outcome among these advanced age mothers. This study will help to educate our potential mothers willing to get pregnant at advanced age regarding fetal and maternal outcome. Although foreign and previous studies are immense on this topic, however, in last 5 years minimal studies are conducted on this topic from Pakistan.

Objectives

To determine frequency of maternal outcome pregnancy induced hypertension, and fetal outcome (low birth weight and 5-minute Apgar score <7, among pregnant patients with age >35 years.

MATERIAL AND METHODS

Study Design: Descriptive study.

Setting: Study was conducted in Gynaecology and Obstetrics department, BMC Hospital, Quetta.

Duration of Study: Six months from 05 December2019 to 04 June 2020)

Sample Size: A sample size of 84 patients is calculated taking the confidence level as 95%, precision of study as 4%, expected

percentage of 5- minute Apgar score < 7 as 3.8%.

Sampling Technique: Non-probability, consecutive sampling.

Sample Selection

Inclusion Criteria: All the pregnant women with advanced age presenting at gestational age

- <15 weeks
- Age greater than 35 and less than 45years
- All paraandgravida was included.
  Exclusion Criteria: Patients with known case of hypertension or diabetes mellitus (on medical records) (as it may aggravate maternal outcome).
- Women with multiple pregnancies (on ultrasound if more than one fetus is identified) (as it may alter our outcome results of the study)
- Women having intra-uterine demise at any stage (on ultrasound if no fetal cardiac activity is seen) (as it will alter our outcome results of the study)

Data Collection

After approval from ethical review board and CPSP, all patients fulfilling the inclusion criteria were enrolled in the study. Written informed consent for inclusion in the study was taken from each patient. Their details including age, parity, gravidity and Body mass index (BMI) was noted. They were followed up during pregnancy after every 4 weeks and were assessed for maternal outcome (operational definitions) during pregnancy. They were delivered as per obstetrical merits and mode of delivery were noted. After birth, fetal out come (operational definitions) were assessed. All data was recorded on the proforma.

The collected data was entered and analyzed using SPSS version 20. Mean and standard deviation was calculated for quantitative values like age, gravidity, BMI andparity. Frequencies and percentages was calculated for qualitative variables like mode of delivery, maternal outcome (gestational Diabetes Mellitus and pregnancy induced hypertension) and fetal outcome (low birth weight and 5-minute Apgar score <7). Data was stratified for effect modifiers including age, parity, gravidity, BMI and mode of delivery (like mother's vaginal microbiota during pregnancy). Post-stratification, chi-square test was applied and $P < 0.05$ was considered significant.

RESULTS

A total of 84 patients were included in the study. The mean age of th epatients was found to be 39.34 ± 2.73 years. Patients were further categorized according to age groups in to 2 groups and most were in the age range of 35-40 years. Also, most of th epatients had gestational age>37 weeks. The mean gestational age was 37.44 ± 2.16 weeks. The mean parity of patients was found as 3.1 ± 1.56. The mean gravidity of patients was found as 5.02 ± 5.85.

The mean BMI was 29.59 ± 3.24 kg/m^2 given in table 1.

The main outcome of the study was maternal and fetal outcome. Most frequent outcome was Pregnancy induced Hypertension and low birth weight which was found in 17 patients (20.2%). All these outcomes are given in table 2.

Also, stratification of maternal and fetal outcome with respect to age, gestational age, parity, BMI and mode of delivery was done. All details are summarized in table 3, 4, and 5.

Table No.1: Demographic details of patients (n=84)

Variable	**N(%)**
Age	
35-40 years	54 (64.28%)
40.1-45 years	30 (35.71%)
Mean±SD	39.34 ±2.73 years
Gestationalage	
≤37weeks	25 (29.76%)
>37 weeks	59 (70.23%)
Mean±SD	37.44 ±2.16 weeks

Table No.2: Frequency of maternal and fetal out-come (n=84)

Variable	N(%)
Maternal Outcome	
Gestational Diabetes Mellitis	14 (16.66%)
Pregnancy induced Hypertension	17 (20.23%)
Fetal Outcome	
Low Birth weight	11 (13.09%)
5-minute Apgar score<7	4 (4.76%)

Table No.3: Stratification of Pregnancy induced Hypertension for age, gestational age, parity, gravidity, BMI and mode of delivery

		Pregnancy induced Hypertension		**P-value**
		Yes	**No**	
Age groups	35-40 years	11	43	**0.808**
	40.1-45 years	6	24	
Gestational age	≤37weeks	6	19	**0.793**
	>37 weeks	11	48	
Parity	≤2	8	30	**0.917**
	>2	9	37	
Gravidity	≤4	10	34	**0.861**
	>4	7	33	
BMI	≤30kg/m^2	10	38	**0.906**
	>30 kg/m^2	7	29	
Mode of delivery	Vaginaldelivery	12	45	**0.983**
	Cesareansection	5	22	

Table No.4: Stratification of Low Birth weight for age, gestational age, parity, gravidity, BMI and mode of delivery

		Low Birth weight		P-value
		Yes	No	
Age groups	35-40 years	7	47	**0.772**
	40.1-45 years	4	26	
Gestational age	≤37weeks	4	21	**0.872**
	>37 weeks	7	52	
Parity	≤2	5	33	**0.756**
	>2	6	40	
Gravidity	≤4	7	37	**0.457**
	>4	4	36	
BMI	≤30kg/m^2	6	42	**0.888**
	>30 kg/m^2	5	31	
Mode of delivery	Vaginaldelivery	7	50	**0.980**
	Cesareansection	4	23	

Table No.5 Stratification of 5-minute Apgar score <7 for age, gestational age, parity, gravidity, BMI and mode of delivery

		5-minuteApgarscore<7		P-value
		Yes	No	
Age groups	35-40 years	2	52	**0.541**
	40.1-45 years	2	28	
Gestational age	≤37weeks	1	24	**0.830**
	>37 weeks	3	56	
Parity	≤2	1	37	**0.404**
	>2	3	43	
Gravidity	≤4	2	42	**0.794**
	>4	2	38	
BMI	≤30kg/m^2	2	46	**0.767**
	>30 kg/m^2	2	34	
Mode of delivery	Vaginaldelivery	3	54	**0.753**
	Cesareansection	1	26	

DISCUSSION

Advanced maternal age, in a broad sense, is the instance of a woman being of an older age at a stage of reproduction, although there are various definitions of specific age and stage of reproduction[11]. The variability in definitions is in part explained by the effects of increasing age occurring as acontinuumrather than as a threshold effect[12]. In Western, Northern, and Southern Europe, first-time mothers are on average 27 to 29 years old, up from 23 to 25 years at the start of the 1970s[13].

In a number of European countries (Spain), the mean age of women at first child birth has crossed the 30 year threshold[14]. This process is not restricted to Europe. Asia, Japan and the United States are all seeing average age at first birth on the rise, and increasingly the process is spreading to countries in the developing world such as China, Turkey and Iran. In the U.S. the average age of first child birth was 26.6 in 2016[15]. The incidence of hypertension in non-pregnant women increases with age, notably after the age of 40. There fore, older women are more likely to enter pregnancy with pre-

existing hypertension[16]. Mild to moderate chronic hypertension usually has only limited impact on maternal wellbeing during pregnancy, although it is associated with significant perinatal mortality resulting from fetal growth restriction (FGR) and placental abruption[17]. Sibai et al. Estimated the risk to be 25% in women with mild hypertension at the beginning of pregnancy and 52% in women with severe hypertension[18].

Several large population based studies have reported that advanced maternal age increases the risk of gestational hypertension and pre-eclampsia (PE)[19].

In an other study, Advanced maternal age is associated with adverse reproductive effects such as increased risk of infertility, and that the children have chromosomal abnormalities. The corresponding paternal age effect is less pronounced[20].

CONCLUSION

The frequency of maternal and fetal out comes and complications were quite higher among women with advanced age groups ie Pregnancy Induced Hypertention, low birth weight, DMII. PE, SB, MC,CS. By the end of the study its showing that pregnancies in advanced age have heigh association with some irreversible complications, which we need to explain to all the pregnant womens.

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