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A Comparative Study to Assess the Maternal and Foetal Outcome among the Hypertensive and Normotensive Mothers in Selected Hospital at Bangalore

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Abstract

Background: Pregnancy and childbirth are natural processes, which comes up with multiple consequences. A hypertensive disorder is one of the pregnancy consequences which is a major alarming cause for maternal, perinatal morbidity and mortalities. The cause for the hypertensive disorders is unknown. Worldwide hypertensive disorder in pregnancy affects 5–22% and it is responsible for 5–10% of complications in all pregnancies. Hypertension in pregnancy is defined as a BP >140mm Hg systolic or > 90 mm Hg diastolic, occurring at any time during pregnancy. Hypertensive disorders during pregnancy are classified into 4 categories, as recommended by the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy, Preeclampsia-eclampsia, Gestational hypertension, chronic hypertension, and Preeclampsia superimposed.

Aim: the aim of the study was to assess the maternal and foetal outcome among hypertensive and normotensive mother after 24 hours of delivery.

Introduction

Hypertension is the most common medical problem encountered during pregnancy, complicating up to 10% of pregnancies. The term hypertension in pregnancy is commonly used to describe a wide spectrum of the patient who may have only mild elevations in blood pressure to severe organ dysfunction. Thus, it is accompanied by minor to major complications. [1] Hypertensive disorders are estimated to occur in 6% to 8% of pregnancies in the United States. Up to 55,000 pregnancies every year in the UK are complicated by chronic hypertension or gestational hypertension. Early term delivery (at 37–38 weeks) may decrease problems for the mother, C-sections, and stillbirths, but it may also result in higher infant morbidity. The perinatal deaths which occur worldwide is around 7.3 million, with most of these in developing countries. [2] In India, the prevalence of pregnancy-induced hypertension (PIH) is 15.2% on a national level, and primipara women are four times more likely to have it than multipara women. Premenopausal women have a hypertension prevalence of close to 25% in whites and 30% in blacks, which rises with age. [3] Hypertension must be treated in its own right, regardless of the assumed underlying pathology, largely to reduce the risk of maternal intracranial haemorrhage.

Statement of the problem

"A Comparative Study to Assess the Maternal and Foetal Outcome among Hypertensive and Normotensive Mother in Selected Hospital Bangalore."

Objectives:

1. To assess the maternal and foetal outcome among hypertensive mother.
2. To assess the maternal and foetal outcome among normotensive mother.
3. To compare the maternal and foetal outcome between hypertensive and normotensive mothers.
4. To assess the association between demographic characteristics and clinical data of maternal and foetal outcome among hypertensive mother.
5. To assess the association between demographic characteristics and clinical data of maternal and foetal outcome among normotensive mother.

Research hypothesis

H_1 : There will be a significant difference in maternal and foetal outcome between hypertensive and normotensive mothers.

H_2 : There will be a significant association between demographic characteristics and maternal and foetal outcome among hypertensive mothers.

H_3 : There will be a significant association between demographic characteristics and maternal and foetal outcome among normotensive mothers.

Need of the study

Maternal and neonatal morbidity and death are significantly impacted by pregnancy-induced hypertension. About 3 to 10% of pregnancies may become complicated by hypertension during pregnancy and frequency varies between institutions and nations. Pre-eclampsia can occur anywhere between 5% and 15% more frequently in Indian hospitals than eclampsia, which occurs around 1.5% less frequently.[4] In India alone around 8.9 lakhs of perinatal deaths occur every year with the biggest contribution from rural India. The cause of hypertension during pregnancy is not clear, but it is seen to occur in the young women, pregnant for the first time, women with less than 20 years of age, patients with diabetes, with a history of hypertension. Maternal mortality has decreased significantly across India with an estimated maternal mortality ratio (MMR) of 174 per 100,000 livebirths in 2015, and an annual rate of reduction of 4.6% between 2000 and 2015; how-ever, progress has varied by region.[5]

Research methodology

Research methodology is the specific procedures or techniques used to identify, select, process, and analyse information about a topic. Research methodology deals with the method of investigation to be adopted by the investigator. It is an asset for the research and is concerned with overall framework for conducting the study. In research, the methodology section allows the reader to critically evaluate a study's overall validity and reliability. The methodology section answers two main questions: how was the data collected or generated? How was it analysed? More specifically, it's about how a researcher systematically 'design a study' to ensure valid and reliable results that address the research aims and objectives.[6] Research methodology is a way to systematically solve the problem.

Research approach

Research approach refers to the approach or the methodology that has been adopted to conduct the research. It is basically involves the selection of research problems, the conceptual frame work that has been adopted.

Hence the present study quantitative research approach is designed to assess the maternal and foetal outcome among the hypertensive and normotensive mothers in CDSIMER hospital in Bangalore in order to accomplish the objectives of the study.

Research design

The research design is the conceptual structure within which the research is conducted; it constitutes the blue print for the collection, measurement and analysis of data. It includes an outline of what the research will do from writing the assumptions and its operational implication to analysis of data.

The design used for the study was Comparative descriptive design research design.

Research setting

Setting in the physical location and condition in which data collection takes place. The section of an appropriate setting for conducting a study is crucial for its successful completion.[7]

This study was conducted among hypertensive and normotensive mother after 24hours of delivery in CDSIMER Hospital. The Hospital was selected on the basis of geographical priority, feasibility of conducting the study**,** aavailability of samples.

Variable under study

Demographic variable:

Mother age, Pre-pregnancy weight, Height, BMI, Residence, Religion, Marital status, Types of family, Mother's education, Occupation, Income, Dietary pattern.

Research variable:

Maternal outcome and fetal outcome.

Population

Population is characterized by the entire set of individuals having some common characteristics. It encompasses target and accessible population.

Target Population: The target population of the study will be all the hypertensive and normotensive mothers.

Accessible population: The accessible population of the study will be all the hypertensive and normotensive mother at selected hospital (CDSIMER), Bangalore.

Sample

The sample consists of hypertensive and normotensive mother after 24 hours of delivery, who meets the inclusion criteria.

Sampling technique

The purpose of using a sampling technique is to increase representativeness and to decrease bias and sampling error. In this study non-probability-convenient sampling technique was used to select the samples.

Sample size

The sample size estimated was 100 using the two-proportion Z-test sample size formula among 50 hypertensive mother and 50 normotensive mother.

Results and discussion

Assess the maternal and foetal outcome among hypertensive mother

The finding of the study revealed that among 50 hypertensive mothers. 68% of hypertensive mother had higher maternal outcome (normal maternal outcome), 32% of hypertensive mother had lower maternal outcome (high risk maternal outcome) and 68% of hypertensive mother had higher foetal outcome (normal foetal outcome), 32% of hypertensive mother had lower foetal outcome (high risk foetal outcome).

Assess the maternal and foetal outcome among normotensive mother

The finding of the study revealed that among 50 normotensive mothers 100% of mother had normal maternal outcome and 14% of mother had higher risk foetal outcome and 86% of mother had normal foetal outcome.

Compare the maternal outcome between hypertensive and normotensive mothers

Groups	Sample	Max. Score	Maternal outcome Scores				Student 't' Test
			Mean	SD	Mean (%)	SD (%)	
Hypertensive	50	18	13.22	2.29	73.4	12.7	18.81*
Normotensive	50	18	16.54	1.16	91.9	6.5	

*Significant at 5% level, t (0.05,98 df) = 1.96

The t test value is significant at 5% level for the maternal outcome (18.81) among hypertensive and normotensive mother. Hence H_1 is accepted. Hypertensive mother had high risk maternal outcome compare to normotensive mother.

Compare the foetal outcome between hypertensive and normotensive mothers

Groups	Sample	Max. Score	Foetal outcome Scores				Student 't' Test
			Mean	SD	Mean (%)	SD (%)	
Hypertensive	50	9	7.28	2.62	80.9	29.1	2.29*
Normotensive	50	9	8.34	1.44	92.7	16.0	

*Significant at 5% level, t (0.05,98 df) = 1.96

The t test value is significant at 5% level for the foetal outcome (2.29) among hypertensive and normotensive mother. Hence H_1 is accepted. Hypertensive mother had high risk foetal outcome compare to normotensive mother.

Compare the clinical outcome between hypertensive and normotensive mothers

Groups	Sample	Max. Score	Clinical Scores				Student 't' Test
			Mean	SD	Mean (%)	SD (%)	
Hypertensive	50	6	2.20	1.25	36.7	20.8	13.45*
Normotensive	50	6	4.24	1.06	70.7	17.7	

*Significant at 5% level, t (0.05,98 df) = 1.96

The finding of the study supported by the study conducted among 100 postnatal mothers. The study revealed that Hypertensive mothers are at a higher risk of developing preeclampsia, placental abruption, and stroke compared to normotensive mothers and Hypertensive mothers are at a higher risk of delivering small-for-gestational-age (SGA) babies and having low birth weight (LBW) infants compared to normotensive mothers.

Assess the association between demographic characteristics and clinical data of maternal and foetal outcome among hypertensive mother.

The result of Chi-square computed on clinical data, maternal outcome and foetal outcome of Hypertensine mothers with selected socio demographic variables showed that:

The association between demographic characteristics and clinical outcomes among hypertensive mothers. The value χ^2 is found to be significant at 5% level for the demographic variables such as age group (χ^2=8.30), occupational status (χ^2=7.12), place of residence (χ^2=4.06), BMI (χ^2=4.35), gravida (χ^2=6.29) and parity (χ^2=6.58). Hence H_2 is accepted.

The value χ^2 is found to be not significant at 5% level for the demographic variables such as educational status, age at marriage, religion, monthly income, dietary pattern, pre pregnancy weight, pre pregnancy height. Hence H_2 is rejected or null hypothesis is accepted.

The association between demographic characteristics and maternal outcomes among hypertensive mothers. The value χ^2 is found to be significant at 5% level for the demographic variables such as place of residence (χ^2=4.18), pre pregnancy height (χ^2=6.75), pre pregnancy weight (χ^2=9.45), gravida (χ^2=4.96) and parity (χ^2=6.44). Hence H_2 is accepted.

The value χ^2 is found to be not significant at 5% level for the demographic variables such as age group, educational status, occupational status, age at marriage, religion, monthly income, dietary pattern, BMI. Hence H_2 is rejected or null hypothesis is accepted.

The association between demographic characteristics and foetal outcomes among hypertensive mothers. The value χ^2 is found to be significant at 5% level for the demographic variables such as age at marriage (χ^2=9.18), place of residence (χ^2=4.90), monthly income (χ^2=4.07), gravida (χ^2=4.43) and parity (χ^2=9.72). Hence H_2 is accepted.

The value χ^2 is found to be not significant at 5% level for the demographic variables such as age group, educational status, occupational status, religion, dietary pattern, pre pregnancy height, pre pregnancy weight, BMI. Hence H_2 is rejected or null hypothesis is accepted.

Assess the association between demographic characteristics and clinical data of maternal and foetal outcome among hypertensive mother.

The result of Chi-square computed on clinical data, maternal outcome and foetal outcome of Hypertensive mothers with selected socio demographic variables showed that:

The association between demographic characteristics and clinical outcomes among normotensive mothers. The value χ^2 is found to be significant at 5% level for the demographic variables such as educational status (χ^2=9.81), occupational status (χ^2=4.43), BMI (χ^2=5.97), gravida (χ^2=4.37) and parity (χ^2=10.13). Hence H_3 is accepted.

The value χ^2 is found to be not significant at 5% level for the demographic variables such as age group, age at marriage, religion, place of residence, monthly income, dietary pattern, pre pregnancy weight, pre pregnancy height. Hence H_3 is rejected or null hypothesis is accepted.

The association between demographic characteristics and foetal outcomes among normotensive mother. The value χ^2 is found to be significant at 5% level for the demographic variables such as occupational status (χ^2=4.68), BMI (χ^2=5.86). Hence H_3 is accepted.

The value χ^2 is found to be not significant at 5% level for the demographic variables such as age group, educational status, age at marriage, religion, place of residence, monthly income, dietary pattern, pre pregnancy height, pre pregnancy weight, gravida and parity. Hence H_3 is rejected or null hypothesis is accepted.

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