Pregnancy-Induced Hypertension among Pregnant Women in Batangas City

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Abstract – *This study determined the prevalence, maternal complications and perinatal outcomes of pregnancy in patients with Pregnancy-Induced Hypertension (PIH). A retrospective study was done by reviewing patients' data at Provincial Health Office of Batangas from January 2013 to December 2018. Those with PIH were then selected for the study using a purposive sampling. From a total of 21, 242 deliveries during the period of study, 52 PIH cases were identified. Most of the pregnant women suffered from PIH were on the reproductive age and had a history of PIH. Their average blood pressure was 160/100 mmHg. Increased blood pressure and headache were the common symptoms reported. Once the pregnant women were diagnosed with PIH, maternal complications such as low birth weight, eclampsia and postpartum bleeding were common. Those mothers over age 35 with pre-existing hypertension are at risk of having pregnancy induced hypertension. Based on the results of the study, clinical guidelines for prevention and control of Pregnancy Induced Hypertension will be disseminated and utilized.*

Keywords – Hypertension, Pregnancy, Pregnancy-Induced Hypertension

INTRODUCTION

Hypertension is a medical conditions that can be experienced during gestation, accounting for 10% complication in gravid women. To classify these hypertensive disorders in pregnancy, the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy recommended 4 categories namely chronic hypertension, preeclampsia-eclampsia, preeclampsia superimposed on chronic hypertension and gestational hypertension (transient hypertension of pregnancy or chronic hypertension identified in the latter half of pregnancy). This terminology is favored over the older but widely used term "pregnancy-induced hypertension" (PIH) because it is more precise [1].

Gestational hypertension usually occurs in the later phase of gestation (>20 weeks' gestation) without any signs of edema, blurring of vision, and followed through normalization of the blood pressure postpartum. Although in some cases, if the progression is not assessed meticulously, it can lead to chronic hypertension later in life.

Maternal mortality refers to women that had been expired due to complications during pregnancy and childbirth. Most of these problems develop during pregnancy, and most can be prevented or treated. On the other hand, other issue may exist before pregnancy but are worsened during pregnancy, especially if not managed promptly.

From 2014-2015, pregnancy induced hypertension related complications were the leading causes of maternal mortality in Batangas City (DOH, 201). In 2014, there were 4 maternal deaths, due to eclampsia and pre- eclampsia. In 2015, there were 5 maternal deaths, which were also due to eclampsia and pre-eclampsia (DOH, 2018). Among the Millennium Development Goals (MDG), maternal mortality is given a low probability of being achieved. Thus, the researcher prompted to conduct this study.

With that, the possibility of accelerating the decline, other countries have been amalgamated with the new target of reducing the maternal mortality, which falls under Sustainable Development Goal 3, aiming globally to less than 70 per 100 000 births, with no country having a maternal mortality rate of more than twice the global average (WHO, 2016).

Thus, the researcher further identified the currently given date which was used in monitoring potential and actual effects of the Philippine government policies on maternal, newborn and child health and nutrition (MNCHN) status. Additionally, a number of suggestions that aim to enhance the data needs were raised for timely analyses of the effects of the policy to Filipino mothers and their children.

Identifying the critical gaps in MNCHN services and suggesting set of priorities for action to extend and strengthen them is also part of this study. And lastly, providing access to, and understanding of the information to help legislators, policymakers, and health professionals to plan effective MNCHN programs and mobilize additional resources to improve the lives of Filipino mothers, newborns, and children.

OBJECTIVE OF THE STUDY

This study determined the prevalence of Pregnancy-Induced Hypertension (PIH) in Batangas City.

Specifically, it determined the characteristics of patient in terms of age, marital status, obstetric history, past medical history, checkup, and blood pressure; identify the description of symptoms being reported and assess the maternal complications and outcomes of pregnancy; determine the factors associated with pregnancy-induced hypertension and finally develop a clinical guideline for prevention and control of PIH thus reducing PIH related complications.

MATERIALS AND METHODS

Research design

To achieve the objectives of the study, the researcher utilized a retrospective chart review of all patients who delivered at different hospitals and Rural Health Units in Batangas City. The study was retrospective in nature.

As commonly defined, retrospective study looks backwards and examines exposures to suspected risk or protection factors in relation to an outcome that is established at the start of the study [2].

The retrospective chart review study was preferred because of its superiority over others in terms of being less costly and demands less time to implement.

Respondents of the Study

The participants of this study comprised of pregnant women of Batangas City from January 2013 to December 2018. The participants were determined thru consultation with the hospital directors and/or chief nursing officers of different hospitals and Rural Health Units. The sampling method used was purposive sampling in which the subjects were hand-picked to be included in the sampling frame based on the availability of the subjects with the desired capability to participate in the study.

Among them, were those diagnosed with PIH, admitted and delivered at different hospitals and RHU, with maternal complications and poor outcomes of pregnancy. A total of 21, 242 pregnant women charts were reviewed. Out of that, 52 patients were identified.

Data Instrument

This study used a self – made questionnaire, which is composed of two parts. Part I discussed the characteristics of patient in terms of age, marital status, obstetric history, past medical history, checkup and blood pressure; identify the description of symptoms being reported and assess the maternal complications and outcomes of pregnancy. Part II determine the factors associated with pregnancy-induced hypertension and finally develop a clinical guideline for prevention and control of PIH thus reducing PIH related complications.

Data Gathering Procedure

The researcher conducted a pre survey in order to gather significant information. When the questionnaire was validated through reliability test, a letter of request was made, which was approved by the Dean of the College of Nursing.

Questionnaires were personally distributed by the researcher. The respondents were informed about the purpose of the study to assure that all their answers will be kept confidential. They were given ample time to answer the questions for validity and reliability of the results.

Afterwards, the researcher briefed the nurses assigned in the records of patients, presenting a prepared letter with an informed consent attached therewith.

Data collection was done using a compilation form. Cases were identified from the records office through reviewing every record of women who delivered from January 2013 to December 2018. The files of cases were then retrieved from the records department for review and the extracted information was recorded on the compilation form.

Individual cases were given a case number to avoid mixing up the data and for confidentiality.

Data collected was crosschecked by reading through the compilation form and the patient's chart. This was done to assess for accuracy in recording and to assess if all information intended to be collected had been collected.

Data Analysis

After the data collection, data were kept securely for the subsequent analysis of data. Collected quantitative data were tallied and subjected to statistical treatment. Results were interpreted and analyzed.

Conclusions and recommendations were formulated after the analysis of findings.

The collected data were tallied, tabulated and analyzed using appropriate statistical treatment. Frequency count and percentage were used to determine the prevalence of Pregnancy-Induced Hypertension.

Ethical Consideration

Ethical clearance was obtained from different institutions involved in the study. Since the study was retrospective by design, written consent from patients was not required. Anonymity was secured by analyzing and presenting the data in aggregate.

RESULTS AND DISCUSSION

As illustrated in Table 1, the characteristics of patients include age, marital status, obstetric history, parity, past medical history, check-up, and blood pressure. The age range of PIH women was from 26-31 years old with a percentage of 28.80 %. Mothers 32-37 years old with a percentage of 26.90 % was second in ranked followed by 20-25 years old. There were also five cases of teenagers who suffered from PIH. Lastly, six (6) cases of age 38-43 years old got pregnant and suffered from PIH. Based on the results, most of the PIH cases came from 26-31 years old. This indicates that even in the productive year, they can suffer from PIH. These findings are not different from the study in United States, where distribution was dominant among productive age followed by teenagers and old age.

Moreover, maternal personal risk factors for pregnancy induced hypertension, include first pregnancy, new partner/paternity, age younger than 18 years or older than 35 years, family history of preeclampsia in a first-degree relative, black race, obesity (BMI ≥30), interpregnancy interval less than 2 years or longer than 10 years [3].

Table 1
Distribution of the Characteristics of Patients

Characteristics	Frequency	Percentage (%)
Age		
19 & below	5	9.60
20-25	12	23.10
26-31	15	28.80
32-37	14	26.90
38-43	6	11.50
Marital status		
Single	6	11.50
Married	45	86.50
Separated/divorced	1	1.90
Obstetric History		
Gravidity		
Primigravida	28	53.80
Gravida 2-4	18	34.60
Gravida 5 & above	6	11.50
Parity		
Livebirths		
3 - 5	35	67.30
6 - 8	17	32.70
Stillbirths		
0	33	63.50
1	17	32.70
2	2	3.80
Abortions		
0	45	86.50
1	7	13.50
Past Medical History		
Chronic hypertension	16	30.80
Pregnancy Induced hypertension	18	34.60
Diabetes mellitus	10	19.20
None	8	15.40
Check up		
Yes	40	76.90
No	12	23.10
Blood Pressure		
Systolic		
170 & above	2	3.80
160	24	46.20
150	5	9.60
140	15	28.80
130	6	11.50
Diastolic		
110 &above	15	28.80
100	22	42.30
90	12	23.10
80	2	3.80
70	1	1.90

However, certain issues on the increasing teenage pregnancy and those mothers who were having more than 4 children contributed to the very low ante natal care accomplishment because they were ashamed to visit the facility and fear that the RHU personnel will scold them especially to those mothers who had complications like hypertension during their previous pregnancies. Thus, as a result, their blood pressure was not monitored thus leads to PIH.

Forty-five cases were married compared to only six (6) cases were single followed by separated with only one case. This difference may be due to Filipino culture that still respected by women.

Most of the PIH cases came from primigravida with a percentage of 53.80 %, followed by gravida 2-4.

During interview with the health workers, most of the primigravida go to the clinic or hospitals during the third trimester, thus their blood pressure was not monitored.

Primigravid women have a threefold increased risk for developing preeclampsia. It occurs more frequently in the first pregnancy from a new partner; pre-existing hypertension; multiple pregnancy and mothers of over 35 years of age. It is also established that preeclampsia is associated with daughters of mothers with preeclampsia more affected and obesity.

With regards to parity, there were 35 or 67.30 % who had 3 to 5 live births, which is the highest percentage. There were only 17 or 32.70 % who had 6 to 8 live births. Although, having stillbirth for one or more is not a major problem, there were 17 cases of one still birth and 2 cases of two stillbirths among the respondents.

In addition, abortion is also a problem due to have some cases. There were 7 or 13.50 % suffered from abortion. With regards to past medical history, pregnancy induced hypertension ranked first with a percentage of 34.60 % followed by chronic hypertension.

Most of the participants had regular check, however, there were 12 who did not have a regular check-up. It shows that there was an underutilization of antenatal care services since there were 23.10 % cases who delivered their baby without antenatal checkup. Severe form of PIH was more prominent among those mothers without checkup. This means that they were not monitored and therefore, had no timely interventions to avoid progressing into eclamptic stage.

Another characteristic of the participants that is significant to PIH were the average blood pressure during checkup. It shows that most of them had a BP of 160 systolic and 100 diastolic. Based on interview with the post-partum mother supported by healthcare provider, most of the cases were diagnosed late during the 31 weeks' gestation and above.

Table 2.1
Description of Symptoms Reported

Symptoms	Frequency	Percentage (%)
1. Headache	31	59.60
2. Epigastric pain	12	23.10
3. Visual Disturbance	15	28.80
4. Nausea	17	32.70
5. Vomiting	16	30.80
6. Convulsions	6	11.50
7. Increased blood pressure	34	65.40
8. Generalized edema	14	26.90
9. Mild to moderate edema	25	48.10
10. Dizziness	21	40.40

Table 2.1 shows the description of symptoms reported related to pregnancy-induced hypertension. The most common symptom reported was increased blood pressure. It shows that when the pregnant women blood pressure ranges from 140/90 to 160/100 mmHg, they need to consult regularly because it can be a manifestation that she may suffer from PIH. Headache was also noted with a percentage of 59.60, which shows that, upon having increased blood pressure, headache was also reported. Mild to moderate edema was also reported with a percentage of 48.10 %.

The findings of the study by Meena [4] further supported the result of table 2.1 which states that Actual test discoveries ordinarily seen with gestational hypertension are restricted to systolic circulatory strain above 140mmHg or potentially diastolic pulse above 90mmHg. Extreme reach blood pressures are above 160mmHg systolic or potentially 110mmHg diastolic due to vasospasm, with blood vessel tightening and moderately decreased intravascular volume contrasted and that of an ordinary pregnancy. Extreme side effects might incorporate unremitting/serious migraine, regurgitating, adjusted mental status, scotomata, photophobia, obscured vision, or transitory visual deficiency/visual field imperfection, dyspnea or rales on assessment, water maintenance causing fringe edema, or right upper quadrant torment because of hepatic impedance.

Numerous stillbirths and infant passing could be deflected if more ladies were healthy, very much sustained, and getting quality consideration during pregnancy, work, and conveyance, and if both mother and infant got fitting consideration in the post pregnancy time frame. Among the symptoms reported, epigastric pain and generalized edema are the least.

Table 2.2
Maternal Complications and Outcomes of Pregnancy

Symptoms	Frequency	Percentage (%)
1. Acute Renal Failure	-	-
2. DIC (Disseminated intravascular coagulation)	2	3.80
3. Pulmonary Edema		
4. Maternal Death	7	13.50
5. Stillbirth	2	3.80
6. Preterm Delivery	4	7.70
7. Low birth weight	16	30.80
8. Neonatal death	6	11.50
9. Eclampsia	8	15.40

10. Postpartum Bleeding	8	15.40
11. Acute Myocardial Infarction	4	7.70

Table 2.2 shows there were lower birth weight babies delivered among mothers with PIH. Based on the data gathered, aside from the lifestyle including diet, economic status of the families is the factor of having low birth weight, which is also related to having PIH. It was followed by eclampsia and post-partum bleeding. As supported by health care workers such as doctors and nurses, the pregnant mothers are aware of the possible complications, however, they can't do anything about it because some of the pregnant mothers missed their routine checkup due to the distance of their houses to the rural health units or hospitals. In addition, they lack some financial support, that's why, they can't go to the hospitals or clinic.

There were also 7 or 13.50 % cases of maternal death. Pregnancy Induced Hypertension is major cause of maternal, fetal and newborn morbidity and mortality [5]. The least in rank was acute renal failure and pulmonary edema. Cases were not identified.

Women with PIH therefore need to be closely followed up and have their blood pressure controlled to prevent severe complications of premature and intrauterine death.

Table 3
Factors Associated with Pregnancy Induced Hypertension

Factors	Frequency	Percentage (%)
1. Young primigravida	7	13.50
2. Mother over 35 years of age	19	36.50
3. Pre-existing hypertension	16	30.80
4. Hyaditiform mole	2	3.80
5. Multiple pregnancy	13	25.00
6. Maternal diabetes mellitus	6	11.50
7. Long inter-pregnancy interval	1	1.90
8. Familial history	11	21.20
9. Obesity	11	21.20

Table 3 shows that mothers that ages over 35 years old, have the highest percentage to have pregnancy induced hypertension. Based on the chart review, there were several factors associated with pregnancy induced hypertension. The most common was those mothers over 35 years of age. It was followed by having pre-existing hypertension and multiple pregnancy. Having long inter-pregnancy interval was the least among all factors.

The result of table 3 is supported by the study of Carson (2018) which stated that the maternal personal risk factors for pregnancy induced hypertension, include first pregnancy, new partner/paternity, age younger than 18 years or older than 35 years, family history of preeclampsia in a first-degree relative, black race, obesity (BMI ≥30), interpregnancy interval less than 2 years or longer than 10 years. Some maternal medical risk factors for preeclampsia were also noted., chronic hypertension, preexisting diabetes, renal disease, systemic lupus erythematosus, obesity, thrombophilia, history of migraine and use of selective serotonin uptake inhibitor antidepressants (SSRIs) beyond the first trimester.

Various factors such as women's status in society, their nutritional status at the time of conception, early childbearing, continuous and firmly dispersed pregnancies, and unsafe practices are profoundly established in the social texture of social orders and collaborate in manners that are not in every case unmistakably comprehended.

CONCLUSION AND RECOMMENDATION

Most of the pregnant women who suffered from PIH were on the reproductive age and had a history of PIH. There average blood pressure was 160/100 mmHg. Increased blood pressure and headache were the common symptoms reported. Clinical guideline for prevention and control of PIH thus reducing PIH related complications will be develop..

Clinical Guidelines for prevention and control of hypertensive disorders of pregnancy will be disseminated and utilized. Solutions that will improve the initial response of women experience an obstetric emergency which are not technologies but are strategies which ensure that the following are always available such as essential equipment, medication, and supplies; skilled staff; a clear system to respond to emergencies—including checklists; financial systems to reduce barriers to emergency care, and emergency transport to a facility able to provide comprehensive obstetric care. Health centers and other facilities should be upgraded to improve maternal care such as political support and selecting sites for the intervention based on agreed upon criteria. Detailed assessments of need should be conducted, development of strategy and agreement cost sharing, and reviewing and updating

clinical protocols. Fortifying existing management, checking, quality confirmation, and proceeding with training exercises. Providing a clinical update for staff, fostering an obstetric emergency team, choosing, and executing a financial scheme for obstetric care, choosing, and purchasing a means for transporting women to the hospital from the health center. Developing, implementing, and managing the referral system. Through the established primary health care, the health providers may be sensitized about the significance of antenatal consideration participation. The significance of conveying in the wellbeing office ought to likewise be re-underscored through the safe motherhood initiative in Batangas City.

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