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THE ROLE OF NURSING IN THE EARLY DETECTION AND PREVENTION OF PREGNANCY-INDUCED HYPERTENSION AMONG PREGNANT MOTHER

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ABSTRACT

Introduction: Pregnancy-induced hypertension (PIH) is a maternal hypertension syndrome diagnosed during the later part of pregnancy, usually after the 20th week of gestation. PIH can lead to severe complications for both the mother and the fetus. Early identification and management of PIH is crucial to prevent adverse maternal and fetal outcomes

Aim: To assess awareness and risk Indicators for Early Detection of Pregnancy-Induced Hypertension

Methods: This research employed a cross-sectional descriptive design, and the study was carried out at some selected Primary Health Centers (PHCs). The eligible participants for the study were pregnant women, with those who had other complications or those who did not give their consent being ineligible. The sample size was determined using the power analysis to be 60. The method used for selecting participants was based on convenient sampling method. This study received Ethical approval from the Institutional Ethical Committee of Sree Balaji Medical College & Hospital (ECR/719/Inst/TN/2015/RR-21) and an informed written consent was also taken from all participants.

Results: In terms of PIH risk indicators, 33.3% had raised systolic blood pressure (≥130 mmHg), 25% had raised diastolic blood pressure (≥90 mmHg), and 16.7% exhibited proteinuria. Common symptoms included rapid weight gain, swelling of hands/feet, and obesity (16.7%). A history of PIH or family hypertension was reported by 20%, while 13.3% had elevated fasting glucose levels (>92 mg/dL). Regarding awareness, 58.3% had heard of PIH, but only 50% knew its symptoms. While 66.7% understood the risks of high blood pressure and 75% monitored their blood pressure, fewer were aware of PIH risks (46.7%) or preventive lifestyle changes (43.3%). Most women recognized the importance of prenatal checkups (83.3%), but 40% were unaware that PIH could occur without prior hypertension. Additionally, 73.3% knew where to seek help for PIH symptoms.

Conclusion: The study concluded that through regular antenatal care, risk factor assessment, patient education, and interdisciplinary collaboration, nurses can contribute to the reduction of maternal and fetal morbidity and mortality associated with this condition

INTRODUCTION

Pregnancy-induced hypertension (PIH) is a maternal hypertension syndrome diagnosed during the later part of pregnancy, usually after the 20th week of gestation.[1] Due to the prompt aggravation of the function of the placenta and the maternal cardiovascular system, PIH can lead to severe complications for both the mother and the fetus. Early identification and management of PIH is crucial to prevent adverse maternal and fetal outcomes.[2]

Nurses play a vital role in the early detection and prevention of PIH. Through regular antenatal care, nurses can monitor blood pressure, assess for signs and symptoms of PIH, and educate pregnant women on the importance of timely reporting of any changes in their condition.[3] Studies have shown that an educational program on PIH can significantly improve nurses' knowledge and skills in managing this condition.[3]

One of the key aspects of early detection is identifying risk factors for PIH. Several studies have identified various risk factors, including family history of chronic hypertension, family history of PIH, obesity, advanced maternal age, and underlying medical

conditions such as diabetes and kidney disease.[4,5,6] Nurses can screen for these risk factors during antenatal visits and provide targeted interventions to high-risk women.

In addition to early detection, nurses can also play a role in the prevention of PIH. Lifestyle modifications, such as a healthy diet rich in fruits and vegetables, regular exercise, and stress management, have been shown to reduce the risk of PIH. [7]

Nurses can educate and counsel pregnant women on these preventive measures, empowering them to take an active role in their own health. Furthermore, nurses can collaborate with other healthcare professionals, such as obstetricians and midwives, to ensure a comprehensive and coordinated approach to the management of PIH. This may include timely referrals, close monitoring of maternal and fetal well-being, and the administration of appropriate medications or interventions as needed.

Nurses are essential in the early detection and prevention of PIH. Through regular antenatal care, risk factor assessment, patient education, and interdisciplinary collaboration, nurses can contribute to the reduction of maternal and fetal morbidity and mortality associated with this condition.

METHODOLOGY

This research employed a cross-sectional descriptive design, and the study was carried out at some selected Primary Health Centers (PHCs). The eligible participants for the study were pregnant women, with those who had other complications or those who did not give their consent being ineligible. The sample size was determined using the power analysis to be 60. The method used for selecting participants was based on convenient sampling method. This study received Ethical approval from the Institutional Ethical Committee of Sree Balaji Medical College & Hospital (ECR/719/Inst/TN/2015/RR-21) and an informed written consent was also taken from all participants.

Data collection procedure

The pregnant women participating in this study were informed about the study aims, methods, and possible risks before they agreed to participate; their written informed consent was obtained. Participants completed anonymous, structured questionnaires consisting of both demographic questions and questions about risk factors associated with PIH. Furthermore, participants knowledge of Permanent Interim Housing was assessed. Thus, crossing all participant's anonymity the process of data collection was performed with the consideration of ethical norms of the healthcare system. The data was analyzed using SPSS version 27.

RESULTS

The result showed that participants 25–29 years old represented the greatest proportion (30.0%), with the 30–34-year age range participants comprising 36.7%. The largest portion of the participants was Hindu (63.3%) and most of the participant was married (91.7%). Concerning socioeconomic status, one half (50.0%) of the participants was middle class, while 25.0% of the participants belonged to both low and upper socioeconomic levels. More than half of them were primiparous, 46.7% while the remainder 43.3% were multiparous. By BMI classification, the majority of the women were normal weight, 36.7% and overweight 30.0%. Forty-five participants reported to have pre-existing hypertension while 45 participants reported that they do not have the disease (50.0%).

Table 2 revealed the several indicators that can help to screen Pregnancy-Induced Hypertension (PIH) in its early stage. The most reported were raised SBP 130 mmHg (33.3%) followed by raised DBP 90 mmHg (25%) assessed through blood pressure check. Proteinuria was also significant: 16.7% of cases had protein ≥ 1+ on dipstick. This was a relatively high rate with 16.7% for rapid weight gain and similar rating for sudden swelling hands/feet. Further, current BMI > 30 (Obese) with proportion of 16.70 % and history of PIH or family history of hypertension with a proportion of 20.00% among participants. Some had an increased blood glucose; fasting glucose level of more than 92 mg/dL was obtained in 13.3% of the women while 6.7% had postprandial glucose raised. These indicators can be used for diagnosing PIH early so that intervention can be made in a timeous manner.

The study showed that while most pregnant women (58.3%) had heard of Pregnancy-Induced Hypertension (PIH), only half knew its symptoms. A majority (66.7%) understood the risks of high blood pressure during pregnancy, and 75% monitored their blood pressure. However, fewer women were aware of the risks of PIH (46.7%) or lifestyle changes to prevent it (43.3%). A significant proportion (83.3%) recognized the importance of regular prenatal checkups, but 40% were unaware that PIH could occur without prior hypertension. Most women (73.3%) knew where to seek help for PIH symptoms. (Table 3)

[Table 1] Demographic variables of the pregnant women with hypertension. N=60

Demographic Variable	Frequency (n)	Percentage (%)
Age		
18–24	8	13.3%
25–29	18	30.0%
30–34	22	36.7%
35+	12	20.0%
Religion		
Hindu	38	63.3%
Muslim	18	30.0%
Christian	4	6.7%
Marital Status		
Married	55	91.7%
Single	5	8.3%
Socioeconomic Status (SES)		
Low	15	25.0%
Middle	30	50.0%
Upper	15	25.0%

Parity		
Primiparous (First-time pregnancy)	28	46.7%
Multiparous (2–3 pregnancies)	26	43.3%
High parity (4+ pregnancies)	6	10.0%
Body Mass Index (BMI)		
Underweight	6	10.0%
Normal weight	22	36.7%
Overweight	18	30.0%
Obese	14	23.3%
Pre-existing Hypertension (Yes/No)		
Yes	30	50.0%
No	30	50.0%

[Table 2] Risk Indicators for Early Detection of Pregnancy-Induced Hypertension (PIH)

(N=60)

Tool/Method	Risk Indicator/Value	Frequency (n)	Percentage (%)
Blood Pressure Monitoring	1. Systolic BP > 130 mmHg	20	33.3%
	2. Diastolic BP > 90 mmHg	15	25.0%
	3. A sustained increase of ≥ 10 mmHg in BP compared to previous visit	12	20.0%
Urine Protein Testing	1. Protein ≥ 1+ on dipstick	10	16.7%
	2. Protein ≥ 30 mg/dL in urine	8	13.3%
Weight Monitoring	1. Rapid weight gain >2 kg/month	10	16.7%
	2. Weight gain >1.5 kg in one week	8	13.3%
	3. Sudden swelling of hands/feet	10	16.7%
Risk Assessment Tools	3. BMI > 30 (Obese)	10	16.7%
	4. History of PIH or family history of hypertension	12	20.0%
Blood Glucose Monitoring	1. Fasting glucose > 92 mg/dL (gestational diabetes)	8	13.3%
	2. Elevated random glucose levels (postprandial)	4	6.7%

[Table 3] Awareness of Pregnancy-Induced Hypertension (PIH) Among Pregnant Women

Awareness Question	Response Options	Frequency (n)	Percentage (%)
1. Have you heard of Pregnancy-Induced Hypertension (PIH)?	a) Yes	35	58.3%
	b) No	25	41.7%
2. Do you know the symptoms of Pregnancy-Induced Hypertension?	a) Yes	30	50.0%
	b) No	30	50.0%
	c) Unsure	0	0.0%
3. Are you aware that high blood pressure during pregnancy can affect the health of both the mother and the baby?	a) Yes	40	66.7%
	b) No	20	33.3%
4. Do you monitor your blood pressure during pregnancy?	a) Yes	45	75.0%
	b) No	15	25.0%
5. Are you aware of the potential risks of PIH, such as preeclampsia, stroke, or organ failure?	a) Yes	28	46.7%
	b) No	32	53.3%
6. Have you received advice or counseling from your healthcare provider about preventing or managing PIH?	a) Yes	38	63.3%
	b) No	22	36.7%
7. Are you familiar with lifestyle changes that can help prevent PIH (e.g., diet, exercise)?	a) Yes	26	43.3%
	b) No	34	56.7%
8. Do you understand the importance of regular prenatal checkups in detecting PIH early?	a) Yes	50	83.3%
	b) No	10	16.7%
9. Are you aware that PIH can occur even without prior hypertension or risk factors?	a) Yes	24	40.0%

	b) No	36	60.0%
10. Do you know where to seek help or treatment if you experience symptoms of PIH?	a) Yes	44	73.3%
	b) No	16	26.7%

DISCUSSION

The results of this study provide valuable insights into the risk factors, awareness, and management of pregnancy-induced hypertension (PIH) among pregnant women. Regarding the demographic characteristics, the majority of participants were in the 25-34 age range, with the largest proportion being Hindu (63.3%) and married (91.7%). Half of the participants were from middle socioeconomic status, and most were primiparous (46.7%). These findings are consistent with previous studies that have identified advanced maternal age, family history, and low socioeconomic status as risk factors for PIH.[8,9]

In terms of PIH risk indicators, a significant proportion of participants had raised systolic blood pressure (33.3%), raised diastolic blood pressure (25%), and proteinuria (16.7%). Additionally, rapid weight gain, swelling of hands/feet, obesity (16.7%), and a history of PIH or family hypertension (20%) were commonly reported.[10]

The study also revealed gaps in awareness regarding PIH among the participants. While 58.3% had heard of PIH, only half knew its symptoms. Furthermore, fewer women were aware of PIH risks (46.7%) or lifestyle changes for prevention (43.3%).[11] These findings underscore the need for comprehensive patient education and awareness campaigns to empower pregnant women in the early detection and prevention of PIH.

Nurses play a crucial role in addressing these gaps. Through regular antenatal care, nurses can monitor blood pressure, assess for signs and symptoms of PIH, and educate pregnant women on the importance of timely reporting of any changes in their condition (Zhao et al., 2020). Studies have shown that educational programs on PIH can significantly improve nurses' knowledge and skills in managing this condition.[12]

In addition to early detection, nurses can also play a role in the prevention of PIH. Lifestyle modifications, such as a healthy diet rich in fruits and vegetables, regular exercise, and stress management, have been shown to reduce the risk of PIH.[13] Nurses can educate and counsel pregnant women on these preventive measures, empowering them to take an active role in their own health.

Furthermore, nurses can collaborate with other healthcare professionals, such as obstetricians and midwives, to ensure a comprehensive and coordinated approach to the management of PIH. This may include timely referrals, close monitoring of maternal and fetal well-being, and the administration of appropriate medications or interventions as needed.[14,15]

CONCLUSION

The findings of this study highlight the importance of early detection and prevention of PIH, with nurses playing a vital role in this process. Through regular antenatal care, risk factor assessment, patient education, and interdisciplinary collaboration, nurses can contribute to the reduction of maternal and fetal morbidity and mortality associated with this condition.

HEALTH EDUCATION:

Based on the results of the pre-education survey, tailored health education sessions would be designed to address the specific gaps in knowledge identified among the participants. These sessions would focus on key topics such as explaining what Pregnancy-Induced Hypertension (PIH) is and how it can impact both the mother and the baby. The importance of regular blood pressure monitoring during pregnancy would be emphasized, along with guidance on identifying the symptoms of PIH, such as swelling, headaches, and vision changes, and when to seek medical help. In addition, the sessions would cover lifestyle modifications that can help prevent or manage PIH, including maintaining a healthy diet, managing weight gain, and reducing stress. The role of healthcare providers in the early detection and prevention of PIH would also be discussed, highlighting the importance of regular prenatal visits and timely interventions. To enhance understanding, educational materials such as brochures, visual aids, and videos would be used to make the information more accessible and engaging, ensuring that the participants leave with a clear understanding of how to manage their health during pregnancy.

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