Evaluate the Effectiveness of Nursing Interventional Package Regarding Pregnancy Induced Hypertension among Pregnant Women: A Pilot Study

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Pregnant women, Hypertension, Nursing interventional package, Pregnancy induced hypertension.

ABSTRACT

Introduction: Pregnancy-induced hypertension (PIH) represents a significant public health concern, affecting a considerable proportion of pregnant women globally. The condition encompasses a range of hypertensive disorders, including gestational hypertension and preeclampsia, which can lead to severe maternal and neonatal complications if not effectively managed. The role of nursing interventions in addressing PIH is critical, as nurses are often the primary healthcare providers who interact with pregnant women throughout their prenatal care.

Aim: To evaluate the effectiveness of nursing interventional package regarding pregnancy induced hypertension among pregnant women in selected hospitals, Chennai.

Methods: The study used a quantitative, experimental research design conducted at Chinna Porur, PHC. The sample consisted of 40 pregnant women with hypertension, selected using a purposive sampling technique. Researchers collected data through a structured questionnaire capturing demographic and clinical characteristics. They also conducted a baseline assessment of Pregnancy-Induced Hypertension using the PIH Assessment Scale to evaluate participants' initial status. Data was analyzed using descriptive and inferential statistics, employing SPSS version 26.

Results: The study revealed showed statistically significant improvements after the nursing intervention. The mean pretest score decreased from (16.48 ± 20.78 to 9.78 ± 8.92) in the posttest, with a significant difference based on the paired t-test analysis. These findings suggest the intervention had a positive and statistically significant effect on reducing the severity of pregnancy-induced hypertension symptoms among the participants.

Conclusions: The study concluded that nursing intervention packages in managing pregnancy-induced hypertension was effective. These interventions have demonstrated improvements in patients' knowledge, psychological well-being, and clinical outcomes.

1. Introduction

Hypertensive disorders of pregnancy, including gestational hypertension, preeclampsia, and chronic hypertension, are major causes of maternal and perinatal morbidity and mortality worldwide. [1] Hypertensive disorders of pregnancy affect approximately 10% to 15% of pregnancies globally, making it imperative to explore effective management strategies, particularly nursing interventions that can mitigate risks and improve outcomes for both mothers and infants. [2,3]

Pregnancy-induced hypertension is a significant public health concern, as it is associated with increased risks of maternal morbidity and mortality, as well as adverse fetal outcomes such as preterm birth and low birth weight [4]. It can lead to severe maternal complications, such as placental abruption, liver and kidney dysfunction, and cardiovascular events. Additionally, hypertensive disorders are associated with adverse fetal outcomes, including intrauterine growth restriction, preterm birth, and stillbirth [5]. In the long term, women who experience hypertensive disorders of pregnancy have an increased risk of developing cardiovascular disease and type 2 diabetes [6,7].

The systematic review by Webster et al. highlights the importance of antihypertensive treatment in managing chronic hypertension during pregnancy, indicating that appropriate management can lead to improved maternal and perinatal outcomes [8]. Nursing interventions that focus on education and lifestyle modifications have been shown to be effective in managing PIH. The systematic review by Magro-Malosso et al. indicates that exercise during pregnancy can significantly reduce the risk of gestational hypertensive disorders [9].

A nursing interventional package can encompass a range of evidence-based strategies, such as enhanced blood pressure monitoring, lifestyle modifications, and targeted educational interventions, all of which can empower pregnant women to actively manage their condition and reduce the risk of associated complications [10].

The role of nurses in providing education and support to pregnant women is crucial. Research indicates that women who receive comprehensive education about hypertension and its implications are more likely to engage in self-management behaviors that can positively influence their health outcomes. Clark et al. conducted a systematic review that demonstrated the positive impact of nurse-led interventions on blood pressure control in patients with hypertension [11]. This evidence suggests that similar approaches can be applied to pregnant women with PIH, where nurses can take the lead in monitoring blood pressure, educating patients, and implementing care plans tailored to individual needs. The collaborative nature of nurse-led care can also facilitate better communication among healthcare providers, ensuring that pregnant women receive comprehensive and coordinated care [12].

However limited study done on nursing intervention on pregnancy induced hypertension. The importance of continuous monitoring and follow-up care for pregnant women with PIH is also emphasized in the literature. The systematic review by Rawther et al. indicates that specialized nurse-initiated interventions can lead to better outcomes in various healthcare settings, including maternal care [13]. Regular follow-ups and monitoring can help identify any changes in a woman's condition, allowing for timely interventions that can prevent complications associated with PIH. Therefore present study was planned to evaluate the effectiveness of nursing interventional package regarding pregnancy induced hypertension among pregnant women.

2. Methodology

The study used a quantitative, qausi experimental research design conducted at Chinna Porur, PHC. Inclusion criteria were pregnant women with hypertension, while those with other medical complications or who did not provide consent were excluded. The researchers employed a purposive sampling technique. Ethical approval was obtained from the institutional ethical committee Sree Balaji medical college & hospital. (ECR/719/Inst/TN/2015/RR-21) and written consent was obtained from participants.

Sample size calculation

The sample size was calculated based on a pilot study calculation [14] , with a confidence level of 0.95 and a probability of 0.07, resulting in a sample size of 41.3. the sample size was rounded down to 40.

Inclusion and exclusion criteria

The inclusion criteria for the study were pregnant women with hypertension. Pregnant women with other medical complications or who did not give consent were excluded from the study.

Data collection procedure

After obtaining informed consent from the pregnant women, researchers collected data using a structured questionnaire that captured demographic and clinical characteristics. Baseline assessment of Pregnancy-Induced Hypertension was conducted utilizing the PIH Assessment Scale to evaluate the initial status among the participants. Subsequently, the nursing interventional package was provided to the pregnant women with hypertension. Finally, a post-assessment was performed at the end of the 4th week for both the experimental and control groups.

Nursing intervention package

The nursing interventional package encompassed various evidence-based strategies, including the administration of antihypertensive medications with close monitoring of dosage, frequency, and patient response; implementation of lifestyle modifications such as exercise, stress management, and rest, with adherence tracked; patient education through informational materials like flashcards and pamphlets on pregnancy-induced hypertension management and dietary guidelines, with data collected on the patients' understanding and compliance; fetal monitoring using kick count charts to ensure the well-being of the fetus; recording of follow-up data in antenatal care charts to monitor blood pressure and track the progression of pregnancy-induced hypertension over time; and the provision of educational videos for the patients, followed by an assessment of their knowledge and confidence in managing their condition.

Statistical Analysis

The researchers used descriptive and inferential statistics to analyze the data, employing SPSS version 26. They utilized appropriate statistical tests, such as the t-test and chi-square test, to examine the data. Additionally, the effectiveness of the nursing intervention was evaluated by comparing the pre-intervention and post-intervention scores of the experimental and control groups, using the t-test.

3. Results

The majority of respondents are aged 35 or older, have a primary education level, and belong to the lower income category, comprising 40% of the sample. Most reside in urban or rural areas, work as skilled laborers or are homemakers, and follow a non-vegetarian diet [Table 1]. Regarding the pregnant women with hypertension were married, aged 20-25, and had given birth before. Half were diagnosed with hypertension between 20-24 weeks of pregnancy, and most had pre-existing hypertension. Additionally, 40% had a normal BMI, and 70% had no history of abortion [Table 2].

[Table 1] Demographic variables of the pregnant women with hypertension. N=40

Demographic Variable	Category	Frequency	Percentage
Age in Years	18-24	4	10.0
	25-30	2	5.0
	31-35	12	30.0
	Over 35	22	55.0
Education Level	Illiterate	6	15.0
	Primary	20	50.0
	Higher Secondary	8	20.0
	Graduate	2	5.0
	Post Graduate	4	10.0
Income Level	Upper (₹69,000-₹92,000)	14	35.0
	Upper Middle (₹46,000-₹69,000)	0	0.0
	Lower Middle (₹28,000-₹46,000)	2	5.0
	Upper Lower (₹9,500-₹28,000)	8	20.0
	Lower (< ₹9,200)	16	40.0
Area of Living	Urban	16	40.0
	Suburban	8	20.0
	Rural	16	40.0
Occupational Status	Professional	8	20.0
	Skilled Worker	16	40.0
	Housewife	16	40.0
Dietary Habit	Vegetarian	14	35.0
	Non-Vegetarian	26	65.0

[Table 2] Clinical variables of the pregnant women with hypertension. N=40

Clinical Variable	Category	Frequency	Percentage
Age at Marriage	20-25	18	45.0
	26-30	14	35.0
	31-40	8	20.0
Parity	Nulliparous (First pregnancy)	16	40.0
	Multiparous (Second or more pregnancies)	24	60.0
Gestational Age at Diagnosis	20-24 weeks	20	50.0
	25-32 weeks	20	50.0
	< 20 weeks	0	0.0
	>32 weeks	0	0.0
Pre-Existing Medical Conditions	Hypertension	22	55.0
	Diabetes	8	20.0
	Kidney Disease	10	25.0
	Heart Disease	5	12.5
Obstetric History	Past gynecological condition	18	45.0
	Family history of pregnancy complications	12	30.0
Number of Abortions	0	28	70.0
	1	12	30.0
History of Pregnancy-Induced Hypertension	Yes	18	45.0
	No	22	55.0
BMI (Body Mass Index)	Normal (18.5-24.9)	16	40.0
	Underweight (<18.5)	10	25.0
	Overweight (25-29.9)	5	12.5
	Obese (≥30)	9	22.5

[Table 3] Comparison of pretest and posttest of PIH Assessment Scale among pregnant women with hypertension. N=40

Assessment & Monitoring	Pre-Test			Post-Test		
	Normal	Mild	Moderate	Normal	Mild	Moderate
Blood Pressure	6(15%)	7(17.5%)	27(67.5%)	12 (30%)	16 (40%)	12(30%)
Proteinuria	7(17.5%)	10 (25.0%)	23(57.5%)	20 (50.0%)	15 (37.5%)	5(12.5%)
Oedema	3(7.5%)	6 (15.0%)	31(77.5%)	10 (25.0%)	20 (50.0%)	10 (25.0%)
Weight Gain/Week	2(5.0%)	29 (72.5%)	9(22.5%)	15 (37.5%)	18 (45.0%)	7(17.5%)
Headache	4(10.0%)	4 (10.0%)	32(80.0%)	15 (37.5%)	10 (25.0%)	15 (37.5%)
IUGR	5(12.5%)	10 (25.0%)	25(62.5%)	15 (37.5%)	15 (37.5%)	10 (25.0%)
Insomnia	30 (75.0%)	5(12.5%)	5(12.5%)	35 (87.5%)	3(7.5%)	2(5.0%)
Depression	20 (50.0%)	10 (25.0%)	10 (25.0%)	25 (62.5%)	10 (25.0%)	5(12.5%)
Fetal Movement Response	15 (37.5%)	10(25.0%)	15(37.5%)	20 (50.0%)	15 (37.5%)	5(12.5%)

[Table 4] Comparison of mean, SD of pretest and posttest of PIH Assessment Scale

Test	Mean	SD	Paired t-test
Pre-Test	16.48	20.78	t = 2.32
Post-Test	9.78	8.92	p = 0.0285*

* $p < 0.05$ – significant.

[Table/Fig -5] Frequency of pregnant women with hypertension regarding lifestyle modifications

Lifestyle habits	Pre-test Yes (0)	Pre-test Sometimes (2)	Pre-test No (1)	Post-test Yes (0)	Post-test Sometimes (2)	Post-test No (1)
Nutrition						
Diet High in fat	4	20	16	36	4	0
Diet High in salt	5	18	17	36	4	0
Diet Low in fat	3	22	15	37	3	0
Diet Low in salt	6	18	16	36	4	0
Diet Rich in Protein & Calcium	4	20	16	36	4	0
Consume dairy products	4	20	16	35	5	0
Potassium Rich foods	5	18	17	37	3	0
Drinking water	3	21	16	36	4	0
Daily exposure to sun	6	18	16	36	4	0
Intake of Fruits	4	20	16	36	4	0
Physical Exercise						
Walking (30Mnts-1Hr per Day)	6	18	16	37	3	0
Deep Breathing exercise	5	18	17	37	3	0
Frequency per week	6	18	16	37	3	0
Daily activity (Chore work, hand craft)	5	18	17	36	4	0
Sleep (8-10Hrs)	6	17	17	37	3	0
Stress Management						
Yoga (30Mnts-1Hr per Day)	8	20	12	37	3	0
Listening Music (30Mnts-1Hr per Day)	7	21	12	36	4	0
Watching TV (30Mnts-1Hr per Day)	8	19	13	37	3	0
Gardening (30Mnts-1Hr per Day)	7	21	12	37	3	0
Playing Indoor games (30Mnts-1Hr per Day)	7	21	12	36	4	0

The nursing intervention package led to significant improvements in clinical outcomes for pregnant women with hypertension. Key findings include increases in the percentage of women with normal blood pressure and proteinuria levels, as well as reductions in moderate hypertension, oedema, and incidences of insomnia and depression. These results suggest that targeted interventions can substantially improve the clinical management of pregnancy-induced hypertension [Table 3]. The comparison of the mean and standard deviation (SD) between the pretest and posttest results of the PIH Assessment Scale for pregnant women with hypertension indicates statistically significant improvements post-intervention [Table 4].

[Table 5] summarizes the frequency of lifestyle modifications in 40 pregnant women with hypertension before (pre-test) and after (post-test) an intervention. Key areas include nutrition, physical exercise, and stress management. Post-test results show a significant improvement in life style of pregnant women.

4. Discussion

Managing pregnancy-induced hypertension through nursing intervention packages is a multifaceted endeavor, encompassing various strategies to improve maternal and fetal outcomes. This discussion synthesizes existing literature on the effectiveness of nursing interventions, highlighting the critical components for successful PIH management. The exploration will focus on key areas: the role of education and self-management, lifestyle modifications, psychological support, technological integration, and the importance of continuous monitoring and follow-up care.

The study revealed the effectiveness of nursing interventional package regarding pregnancy induced hypertension among pregnant women. The results of the PIH Assessment Scale showed statistically significant improvements after the nursing intervention. The mean pretest score decreased from 16.48 to 9.78 in the posttest, with a significant difference based on the paired t-test analysis. These findings suggest the intervention had a positive and statistically significant effect on reducing the severity of pregnancy-induced hypertension symptoms among the participants.

This study is supported by the work of Magee et al., which emphasizes the importance of providing women with information about blood pressure monitoring, dietary recommendations, and warning signs of complications. By empowering women with knowledge, nurses can foster a sense of agency and responsibility, which is crucial for effective self-management [15]. Another study by Mahmoud, W found that nursing interventions significantly improved pregnant women's knowledge and self-care practices for pregnancy-induced hypertension, especially among those receiving hospital-based care. The hospitalized group showed greater satisfaction and a strong correlation between their knowledge and self-care scores. These findings align with the current study, emphasizing the crucial role of nursing interventions in enhancing the management of pregnancy-induced hypertension [16].

The psychological aspect of nursing care is another critical component in managing PIH. High-quality nursing care that includes psychological support has been associated with improved patient outcomes in managing pregnancy hypertension [17, 18]. Implementing collaborative care models further enhances the effectiveness of nursing interventions. Multidisciplinary approaches involving nurses, physicians, dietitians, and other healthcare professionals have been shown to significantly improve patient outcomes [19]. These models facilitate comprehensive care that addresses the various aspects of managing hypertension during pregnancy, from medical treatment to lifestyle counseling. The study by Saedan, M et al. found that adherence to established protocols significantly reduced the incidence of complications associated with pregnancy-induced hypertension [20].

5. Conclusion

The study revealed that the effectiveness of nursing intervention packages in managing pregnancy-induced hypertension. These interventions have demonstrated improvements in patients' knowledge, psychological well-being, and clinical outcomes. Nurses play a vital role in this process through educational initiatives, psychological support, promotion of lifestyle modifications, and adherence to standardized protocols. Furthermore, the integration of collaborative care models and technological innovations further enhances the efficacy of these nursing interventions. However, it is essential to address the challenges and barriers to implementing these strategies to optimize the delivery of care. Ongoing research and practice development in this area will be crucial for improving outcomes for pregnant women with PIH and their infants.

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