EFFECT OF GARLIC THERAPY ON BLOOD PRESSURE AMONG THE PATIENTS WITH HYPERTENSION IN SELECTED AREA, NELLORE: A RANDOMIZED CONTROL TRAIL

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Abstract

In India, the biggest risk factor for chronic diseases is hypertension. According to recent epidemiological studies, young people and those living in rural areas of India are experiencing a higher rate of increase in hypertension. Young-age hypertension is very common, particularly in the less developed states. India has a far higher prevalence of adverse outcomes from cardiovascular disease due to hypertension than do developed nations. An important result is the low awareness, treatment, and control of hypertension, particularly among underserved urban and rural populations. Garlic is a vegetable herb best known as a flavoring for food. Garlic has numerous health benefits; it has an antihypertensive, antidiabetic, antilipid, antimicrobial and antiplatelet effect on the body. **Methodology:** Present study was conducted to assess the effect of garlic therapy on blood pressure among hypertensive clients in selected Community area. Using quantitative approach with Rondamized controlled design the study was conducted among 60 samples selected by probability simple random sampling technique from selected Community areas in Nellore District, Andhra Pradesh. **Results:** Regarding the impact of consuming garlic therapy on lowering blood pressure in hypertension patients, 19 (63.4%) of the experimental group's participants had normal blood pressure at the time of the measurement, and 11 (36.6%) had mild blood pressure; in contrast, only 3 (10%) of the Control group's participants had normal blood pressure, 23 (76.6%) had mild blood pressure, and only 4 (13.3%) had moderate blood pressure. The hypertensive patients had a mean score of 21.7, a standard deviation of 5.41, and a calculated "z" value of 6.64. The study's conclusions demonstrate the beneficial effects of garlic therapy consumption on hypertension patient's blood pressure levels.

Index Terms: Effect, Garlic Therapy, Hypertensive Patient.

INTRODUCTION

Hypertension is one of the most common disease affecting the adult people. The World Health Organization reports details that in 2023 global hypertensive patients coverage cause 7.5 millions of death. The hypertension prevalence among elderly in globally is 53.72%. The prevalence of hypertension will increased with age. Nearly half of adult (119.9 million) have hypertension. Researchers looked into a number of published studies on the impact of garlic on hypertension. The majority of research employed 600–900 mg of garlic powder daily, which yields 3.6–5.4 mg of allicin, the main ingredient in garlic that lowers blood pressure. According to the investigation, hypertension patients who take garlic appear to have lower systolic and diastolic blood pressure than those who do not. Compared to patients whose blood pressure was not high at the start of the research, those who had high blood pressure at that point shown a better effect. By relaxing blood vessels and disrupting the action of angiotensin I, an enzyme involved in the development of high blood pressure, garlic may lower blood pressure. It might also have an indirect effect by dissolving blood clots in the blood arteries and lowering cholesterol. The majority of the research that made up the study were done for a brief period of time—between 12 and 23 weeks. Longer-term studies are needed to determine garlic's benefits in the long run for hypertension. It could be possible to further solidify the link between garlic and blood pressure by using standardised garlic preparations. Preparations made from garlic provide a number of benefits over raw garlic.

Objectives

1. To identify the demographic variables of patients with hypertension

2. To evaluate the effectiveness of garlic powder on reduction of blood pressure level among the patients with hypertension

3. To associate the effectiveness of garlic powder on reduction of hypertension with the socio demographic variables.

Hypotheses

H1: There will be a significant difference between the mean pretest Blood Pressure level and mean posttest Blood Pressure level of patients in the experimental group after administration of garlic powder.

H2: There will be a significant difference between the mean posttest blood pressure Levels among experimental and control group.

H3: There will be a significant association between garlic powders on reduction of hypertension with selected socio demographic variables.

Null hypothesis

H01: There will be no significant difference between the mean pretest Blood Pressure level and mean posttest Blood Pressure level of patients in the experimental group after administration of garlic powder.

H02: There will be no significant difference between the mean posttest blood pressure levels among experimental and control group.

H03: There will be no significant association between garlic powders on reduction of hypertension with selected socio demographic variables.

LITERATURE REVIEW

Prashant R Kokiwar,2012 conducted community based cross sectional study in rural community to find out prevalence of hypertension in central India and to know the factors contributing to it.924 study subjects aged 30 years and above were selected using systematic random sampling of houses. Anthropometry, Blood Glucose, and Blood pressures were measured with standard instruments and methodology for all the study subjects. Statistical tests like Chi square, Student's t test and chi square trend were used to analyze the data where ever applicable. Results showed Prevalence of hypertension was 19.04%. It was higher in females (23.4%) than males (14.4%). It was seen that prevalence of hypertension increased with age. Prevalence of Pre hypertension was high (18.8%). 4.3% had isolated systolic hypertension and 0.9% had isolated diastolic hypertension. Older age, increased body mass index and waist hip ratio were significantly higher among hypertensive compared to normotensive. Factors like upper social class, sedentary physical activity, tobacco use and diabetes were significantly associated with hypertension. Alcohol intake was not associated with hypertension.

Stabler SN,Tejani AM,Huynh F,Fowkes C,2012 systematic review to determine the garlic as monotherapy, in hypertensive patients, lowers the risk of cardiovascular morbidity and mortality compared to placebo. Systematic search for trials was conducted in the Cochrane hypertension group register, CENTRAL, MEDLINE, EMBASE, AMED and CINAHL upto November 2011.Search identified two randomized controlled trials for inclusion. One trial included 47 hypertensive patients and showed that garlic significantly reduces mean supine systolic blood pressure by 12mmHg (95% CI 0.56 to 23.44mmHg, p=0.04) and mean supine diastolic blood pressure by 9mmHg (95% CI 2.49 to 15.51mm Hg,p=0.007) versus placebo. The author further states that garlic was "free from side effects" and that no serious side effects were reported. The second trial couldn't be meta-analysed as they did not report the number of people randomized to each treatment group. They did report that 200mg of garlic powder given three times daily, produced a mean reduction of systolic blood pressure by 10-11mg and of diastolic blood pressure by 6-8mmHg versus placebo.

Conceptual Frame work

The conceptual framework of the study was based upon J. W. Kenny's open system model. All living systems are open in that there is a continual exchange of matter, energy and information. Open Systems have varying degrees of interaction with the environment from which the system Receives input and gives back output in the form of matter. Energy and information for Survival all system must receive varying types and amount of matter, energy and Information.

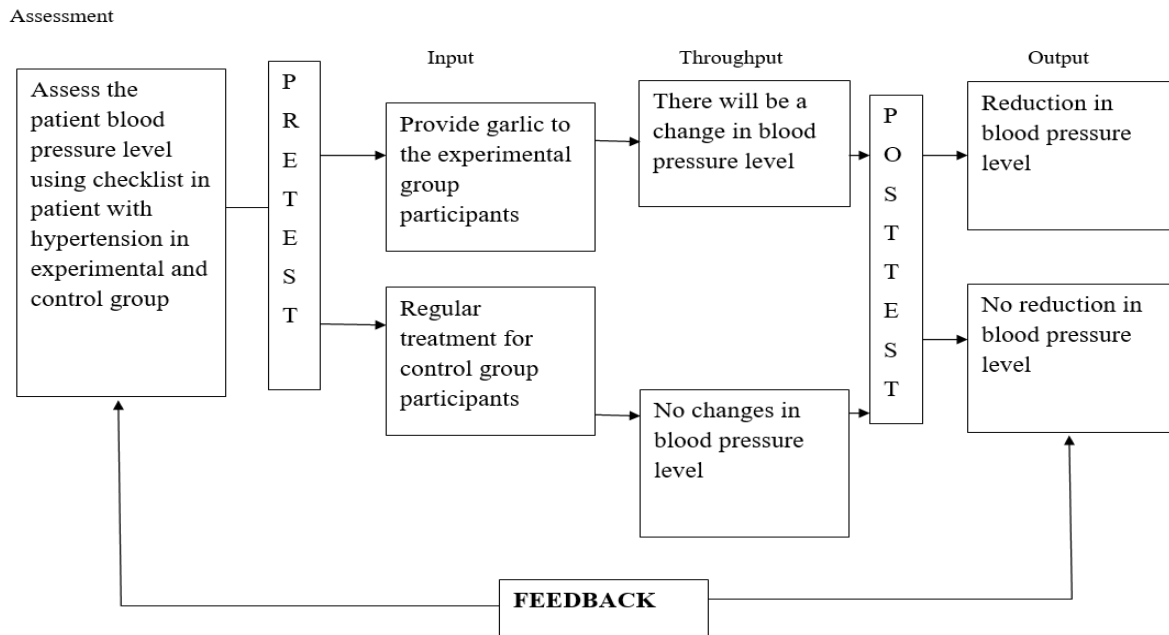The main concepts of the system model are Input, Throughput, Output and feedback

Figure 1: Conceptual Framework Based on J.W.Kenny's Open System Model

METHODOLOGY

Trial design: Randomized open-label parallel group trial was selected with 1:2 allocation ratios for experimental group and control group.

Study Setting:

The study was conducted at Venkatachalam in Nellore. Venkatachalam is located 23.2 kilometers away from the Narayana College of Nursing. Overall population of Venkatachalam is 75,981 out of which males are 18,140, females are 15,134. 2256 participants having hypertension. Health facilities such as primary health Centre & anganwadi centers, Government schools are available.

Population

Target population

Target population of the present study includes all hypertensive patients.

Accessible population

Accessible population of this study was hypertensive patients residing in Venkatachalam, Nellore

Sample Size

Sample size was 60 who fills inclusion criteria. An eligible sample was recruited by lottery method of simple Random technique. Eligible samples were randomly allocated to

Experimental Group (30) and controlled group (30) through the chits. In chit, every 1 number was allocated to Experimental group and every 2 number in chit allocated to control group.

Criteria for Sample Selection

Inclusion criteria

The study participants includes;

- Who are willing to participate.

- Both female & male clients.

- Who can speak and understand Telugu or English.

- Who have mild hypertension (systolic 130-139 mmHg & diastolic 80-89mmHg) and moderate hypertension (systolic 140-159 mmHg & diastolic 90-99 mmHg).

Exclusion criteria:

The study participants includes;

- Who have complication like heart failure, neuropathy, hormonal disorder etc.

- Who have severe blood pressure > 180/> 110 mmHg.

- Prior history of adverse reaction to garlic.

- Pregnancy or lactation.

Data Collection Tool:

The tool used for this study consists of 4 sections. Section I to III consist of structured questionnaire

Section I:

- Demographic Data: It includes age, gender, educational status, occupation, religion, marital Status, Income, type of family

Section II:

- Clinical profile: Time of diagnosis, Duration of treatment, previous medical history, Type of treatment, family history of hypertension.

Section III:

- Life style pattern: Type of diet, Exercise, Smoking, BMI.

Section IV:

- The self-structured checklist was used to assess the blood pressure for experimental and control group.

Each individual was informed of the overall objectives and procedures of this trial before obtaining the written informed consent. The study protocol was approved by a research ethics committee, Narayana College of Nursing.

Table 1: The Distribution of blood pressure level in experimental group and in control group before and after administration of garlic therapy.

n=60

Level of blood pressure	Experimental group				Control group			
	Pre test 1st day		Post test 15th day		Pre test 1st day		Post test 15th day	
	F	%	F	%	F	%	F	%
<120/80	-	-	7	23.3	-	-	-	-
121/81-139/89	12	40	23	76.7	7	23.3	16	53.4
140/90-159/99	17	56.7	-	-	21	70	14	46.6
≥160/100	1	3.3	-	-	2	6.7	-	-

12 (40%) participants had 121/81-139/89mm of Hg in pre Intervention, whereas in post intervention (15th day) 23(76.7%) participants had 121/81-139/89mmHg and 17(56.7%) participants had 140/90-159/99 mm of Hg in pre intervention, whereas in post intervention (15th day) none of them had 140/90-159/99 mm of Hg in the experimental group.

In control group, 7 (23.3%) participants had 121/81-139/89 mmHg in pre intervention, in post intervention (15th day) 16 (53.4%) participants had 121/81-139/89 mmHg and 21 (70%) participants had 121/81-139/89 mmHg in pre intervention, whereas in post intervention (15th day) 14 (46.6%) participants had 121/81-139/89 mmHg in control group.
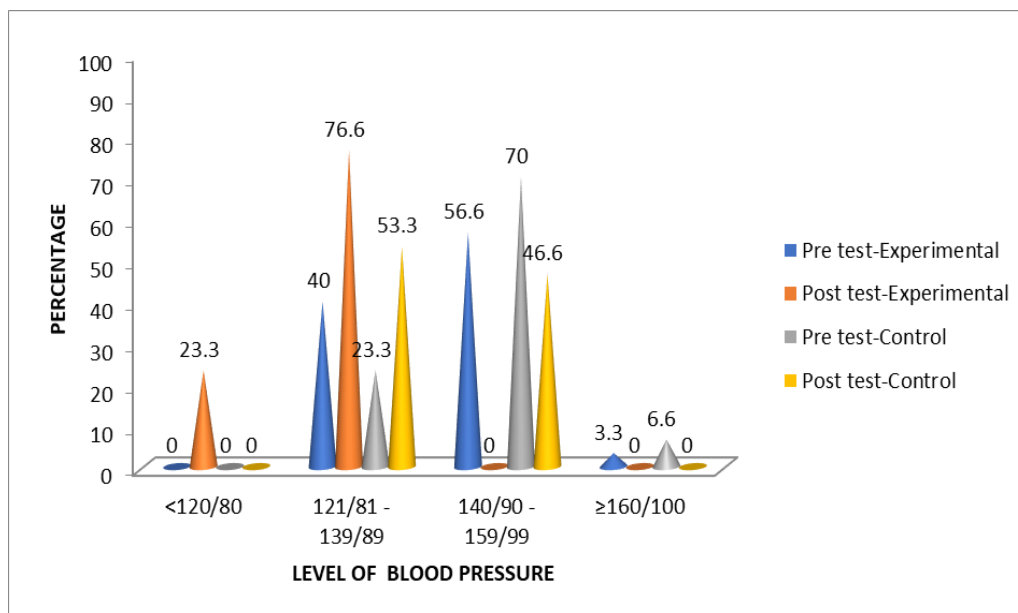
Table 2: Comparison of mean in pre and post assessment in experimental group.

Test	Mean	Mean difference	SD	'Z' test	Remarks
Pre Intervention	140.3/80		9.96	Cv:6.64	
Post Intervention	118.6/80	21.7	5.41	Tv:12.25 P:0.05	NS

The pre intervention mean blood pressure of the experimental group was 140.3/80 with a standard deviation of 9.96. With a standard deviation of 5.41, the post intervention mean blood pressure was 118.6/80. The Z value that was achieved, 6.64, was less than the tabulated value of 12.25 at the 0.05 threshold of non-significance, indicating that the results from the preceding table were confirmed.

The study's conclusions demonstrate the information offered on lowering blood pressure levels in hypertensive patients by administering garlic therapy. As a result, the research hypothesis was rejected and the null hypothesis was accepted

DISCUSSION

The goal of the current study is to evaluate the effect of consuming garlic therapy using 60 samples—30 for the experimental group and 30 for the control group. 19 participants (63.3%) had normal blood pressure, 11 participants (36.6%) had mild blood pressure, 3 participants (10%) had normal blood pressure, 23 participants (76.6%) had mild blood pressure, and 4 participants (13.3%) had moderate blood pressure in the control group.

The obtained "z" value is 6.64, the mean value is 21.7, and the standard deviation is 5.41. As a result, there is a significant association between blood pressure and sociodemographic Variables such sex, education, family history of hypertension, and body mass index.

LIMITATIONS

The limitations of the current study is the small number of patients with mild and moderate hypertension which may affect the generalization.

RECOMMENDATIONS

- A longitudinal study can be conducted to assess the effectiveness of garlic therapy in maintaining blood pressure level.

- This study can be done as a comparative study in different settings.

- The effectiveness of garlic therapy can be tested for other disease conditions like hyperlipidaemia, and other cardiac disease etc.

CONCLUSION

- In conclusion, our present trial indicates that garlic supplementation can be useful to reduce blood pressure.

Acknowledgements

Conflict of Interest

- The authors declare that they have no competing interests.

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