



A study to assess the effectiveness of foot bath technique on blood pressure among patients with hypertension in Narayana Medical College Hospital at Nellore



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Abstract: Non communicable chronic diseases are the silent epidemic of the 21st century. It is the major cause of mortality and disability across the world through they are preventable and manageable with early detection and correct treatment protocol and through simple life style modifications. **Aim:** A study to assess the effectiveness Of Foot bath technique on blood pressure among patients with Hypertension. The study was conducted at Narayana Medical college hospital, Nellore by using a descriptive cross sectional design. **Materials and Methods:** 60 CABG patients were selected by Convenience sampling technique, interview method was used to collect data. **Setting and design:** The data was organized, tabulated, analyzed and interpreted by using descriptive statistics and inferential statistics. Results: The study shows that there is statistically significant reduction of blood pressure level among hypertensive clients with the application of foot bath technique.

Introduction: The incidence of non communicable chronic disease is growing as an astonishing rate globally. The global burden of diseases study estimates that 52% of CVD deaths occur below the age of 70 years in India. The contributing factors for the growing burden of CVD's are increasing prevalence of risk factors especially hypertension, dyslipidemia, diabetes, obesity, physical inactivity and tobacco use.

Hypertension is an important worldwide public health challenge because of its high frequency and concomitant risks of cardio vascular and kidney disease. It has been identified as the leading risk factors for mortality and is ranked third as a cause of Disability Adjusted Life Years (DALY).

Hypertension is the force exerted by the blood against the walls of the blood vessels as it flows through them. The causes of the hypertension are stress, hereditary, obesity, aneurysm, bad headache, smoking, lack of physical activity, too much salt in the diet, too much alcohol consumption (more than 1

or 2 drinks per day), age, family history hypertension, chronic kidney diseases and adrenal and thyroid disorders etc. In hypertension, the heart must work harder to pump blood. High blood pressure can also damage the wall of the arteries with time hypertension increases the risk of heart diseases, kidney diseases and stroke. The clinical manifestations of hypertension are headache, bloody nose, severe anxiety, dyspnea, fatigue, dizziness, angina, palpitations etc.

The hypertension is common cause of death in industrial countries. It is one of the common reason or developing the complications like multi organ failure, heart failure, ventricular hypertrophy, widening of arteries, stroke and other complications like hypertensive retinopathy, hypertensive nephropathy etc.

The treatment modalities of hypertension are mainly 3 pillars i.e., diet, exercises and medications through these contribute in reducing the blood pressure apart from it alternative therapy, play a vital



role in reducing blood pressure one of such therapy is foot bath techniques.

Foot bath is considered to be very simple, convenient, economical and can be done in domiciliary setting and most commonly used of all hydrotherapy techniques. The effects of foot bath are: Promotes circulation throughout the day, Boosts the immune system significantly increases lymph flow, Neurological soothing effects such as promoting relaxation relieves fatigue and insomnia, Other effects include pain relief of headaches, colds, asthma and hypertension and nasal congestions.

The foot bath technique is an immersion of foot in warm water 25 to 30 degree Celsius for 20 minutes has the potential to improve congestive functions, relaxation, reduce stress, improve circulations in hospitalized patients with mild to moderate cognitive impairment in addition, it also improves by cardiac functions by reduce the blood pressure. The foot bath is safer and more hygienic than taking a hot bath for many people's especially those who have heart conditions heat intolerance or may be prone to urinary tract infection.

Need for the study: Hypertension affects nearly 26% of the adult's population worldwide. Hypertension is an important independent predictor of CVD, CVA and death.

World Health Services (2013-2014) in overall approximately 20% of the world adults are estimated to have hypertension, when hypertension is defined as blood pressure in excess of 140/90 mm hg. The prevalence dramatically increases in patients older than 60 years. In India the prevalence of hypertension in the youngest age group (30-45) is 14% and increased to a peak of 64% in the age group of 60-69 years while prevalence of prehypertension was highest in the group (30-45) years 36%.

National health surveys(2013-2014) in various countries have shown a high prevalence of poor control of hypertension about 33% urban and 25% rural Indians are hypertensive of these, 25% rural and 42% urban Indians are aware of their hypertensive status. Only 25% rural and 38% of urban Indians are being treated for hypertension. One-tenth of rural and one-fifth of urban Indian hypertension population control.

WHO (2012) states that hypertension is a directly responsible for 57% of all stroke death and 24% of all coronary heart disease in India. It is a silent killer disease that affects 600 million people and also hypertension causes 5 million pre mature deaths a year worldwide. In recent year the prevention early detection and treatment of high blood pressure remains an important public health challenges. Hypertension affects approximately 1 billion individuals worldwide. Prevalence of hypertension was 59.9 and 69.9 per 1000 males and females in urban population and 35.5 and 35.9 per males and females in rural population in world wide. The prevalence rate of hypertension in America, Asia and Korea is 45%, 35% and 72% respectively.

World hypertension league (2010) estimated that globally 7 million peoples die every year due to high blood pressure and over 1.5 million suffer from the diseases and 3.30 million died due to CVD.

Who health statistics (2009) the prevalence of hypertension in India was 23.1 % in men and 22.6% in women is equal or more than 25 years age. The prevalence rates in all developed countries ranges from 32.3% to 77.9% it is predicted that about 1.56 billion more people will be affected by 2025.

National health care services (2008-2010) The prevalence of hypertension in different states of India are, in Andhra Pradesh 42.3%, in Orissa 18.4% , in Tamilnadu 21%, in West Bengal 32% and 47% in Kerala.

National institute of health and national library of medicine (2008) the prevalence rate of hypertension total population in Nellore 28% of population are suffering from hypertension.

From the personal experience of the investigator during clinical experience in hospital and also considering the magnitude of the problem and with a view of developing skills to the patients regarding the home remedy for blood pressure, the investigator was motivated to assess the effectiveness of foot bath technique on reduction of blood pressure among patients with hypertension.

Problem statement: "A study to assess the effectiveness of foot bath technique on blood pressure among patients with hypertension in Narayana Medical College Hospital, Nellore.



Objectives

- ❖ To assess the pre test and post test level of blood pressure among patients with hypertension in experimental group.
- ❖ To assess the pre test and post test level of blood pressure among patients with hypertension in control group.
- ❖ To assess the effectiveness of foot bath technique on blood pressure among patients with hypertension in experimental group.
- ❖ To compare the effectiveness of foot bath technique on blood pressure among patients with hypertension between experimental group and control group.
- ❖ To associate the pre test and post test blood pressure with the socio demographic variables of patients with hypertension in experimental group.
- ❖ To associate the pre test and post test blood pressure with the socio demographic variables of patients with hypertension in control group.

Operational definitions

Effectiveness:- It refers to the therapeutic outcome of foot bath technique in reducing blood pressure among patients with hypertension which is assessed by using sphygmomanometer.

Foot Bath Technique:- It refers to the immersion of both the feet and ankles in 40°C to 42°C warm water for 15-20 minutes every evening for a period of 1 week in order to reduce blood pressure.

Blood pressure:- Pressure exerted the normal blood pressure is 120/80 mm Hg.

Hypertension:- Person those who are medically diagnosed to have increased blood pressure since 1 year. The systolic blood pressure >140 and diastolic blood pressure >90.

Patients:- The person those who are suffering with hypertension.

Hypothesis

Research Hypothesis:

H1:- There is a statistically significant difference on blood pressure before and after foot bath technique among patients with hypertension.

H2:- There is statistically significant association between the blood pressure and selected demographic variables among patients with hypertension in experimental group and control group.

Delimitations

The present study is delimited to,

- ❖ Patients with hypertension admitted in Narayana Medical College Hospital.

- ❖ A sample size of 60 in patients only.

- ❖ 2 weeks of data collection period only.

Projected outcome: The result of the study would help to determine the effectiveness of foot bath to reducing blood pressure among patients with hypertension.

Materials and methods:

Research approach: The quantitative research approach.

Research design: Descriptive cross sectional design
Setting of the study: The study was conducted at Narayana Medical college hospital, Nellore.

Sample: The samples for the present study includes 60 CABG patients were selected by Convenience sampling technique, interview method was used to collect data, at Narayana Medical college hospital, Nellore.

Sampling technique: Non probability purposive sampling technique.

Sample size: The sample size of the study was 60 patients with Hypertension.

Among the 30 patients there assigned to experimental group and 30 to control group.

CRITERIA FOR SAMPLE SELECTION

Inclusive criteria:-

1. Patients who are diagnosed to have hypertension since 1 year.
2. Clients who are seeking health care services and admitted in Narayana Medical College Hospital, Nellore.
3. Both men and women above 30 years of age.
4. who knows Telugu and English.

Exclusive criteria:-

1. Patients with hypertension.
2. Patients with foot ulcer, who are disabled, varicose vein, edema.
3. Who were not willing to participate.
4. With polyneuritis and Neuropathy and loss of sensation.

Description of the tool: The questionnaire for the presents study consists of two parts.

Part A:- Deals with demographic data.

A structured questionnaire is was used to assess the demographic data which is includes are age,



gender, education, occupation, family income, religion, dietary pattern, types of family, place of residence, duration of hypertension, BMI, family history of hypertension, history of alcoholism, history of smoking, comorbid illness.

Part-B: Assessing Blood pressure with Sphygmomanometer.

Part-C:-Foot Bath Therapy.

Part-B:- I) Assessing Blood Pressure With Sphygmomanometer.

(Indian hypertension guidelines - ii)

Category	Systolic(mm Hg)	Diastolic (mm Hg)
Optimal**	<120	<80
Normal	<130	<85
High-normal	130 - 139	85-89
Hypertension***		
Stage 1	140-150	90-99
Stage 2	160-179	100-109
Stage 3	≥180	≥110
Isolated systolic hypertension		
Grade 1	140-159	<90
Grade 2	≥160	<90

❖ Optimal blood pressure with respect to cardiovascular risk is below 120/80mm Hg. However unusually low readings should be evaluated for clinical significance.

❖ Based on the average of two or more blood pressure readings taken at least on two visits after an initial screening.

Part-C: - Foot Bath Therapy

Intervention protocols: Foot bath technique, 2 times a day for 7 days.

Data collection procedure: Formal permission was obtained from the principal, Narayana College of Nursing Institutional ethical committee, Medical superintendent, nursing superintendent, Nature and purpose of the study was conducted 17-6-2015 to 24-6-2015. Confidentiality of information was assured. 60 samples were selected by non-probability purposive sampling technique. The samples were informed by the investigator about the nature and purposes of the study and consent was obtained. Foot bath technique was done for patients in experimental group with warm water of temperature 40°C to 42°C for a period of allow 15-20 minute twice a day. For a period of one week in order to reduce BP. Blood pressure is monitored in lying position for right hand

before and after the procedure and it was recorded. The reliability of the instrument was assessed by checking the BP of a sample by the investigator with the same instrument at the same time for a period of two minutes variation. The instrument is found reliable.

Plan for data analysis: The data is analyzed using the descriptive statistics like frequency, percentage, median, standard deviation and inferential statistics.

Results and discussion: with regard to age in experimental group 12(40%) belong to 50-60 years of age, in control group 13(43.3%) belong to 40-50 years of age group.

With regard to gender in experimental group, 19(63.3%) are males, in control group 19(63.3%) are males.

With regard to education in experimental group 17(56.7%) are illiterates, in control group 16(53.3%) are illiterates.

With regarded to occupation in experimental group 16(53.3%) belong to sedentary worker, in control group 18(60%) belong to moderate worker.

With regarded to family income per month in experimental group 13(43.4%) earns to <5000 Rs, in control group 15(50%) earns to <5000 Rs.

With regarded to Religion in experimental group, 15(50%) are Hindus, in control group, 20(66.7%) are Hindus.

With regarded to Dietary pattern in experimental group, 16(53.3%) consume mixed diet, in control group, 18(60%) consume mixed diet.

With regard Place of Residence in experimental group 21(70%) are rural, in control group 16(53.3%) in village.

With regard types of family in experimental group, 19 (63.3%) living in nuclear family, in control group, 25(83%) living in nuclear family.

With regard duration of hypertension in experimental group 12(40%) had hypertension for 2-5 years, in control group, 15(50%) had hypertension 1 year, 15(50%) had hypertension for 2-5 years.

With regard BMI in experimental group, 25(83.4%) are normal, in control group, 16(53.3%) are normal.

With regard family history of hypertension in experimental group, 25(83.3%) did not have history



of HTN, in control group 16(53.4%) had the family history of HTN.

With regard history of alcoholism in experimental group, 21(70%) are non alcoholics, in control group 16(53.4%) are non alcoholics.

With regard history of smoking in experimental group, 23(76.7%) are non smokers, in control group 21(70%) are non smokers.

With regard co-morbid illness in experimental group, 19(63.4%) had others, in control group 17(56.7%) had others.

Table-1: Frequency and percentage distribution based on pre and post B.P on 1st and 7th day.

(N=60)

	Experimental group (n=30)				Control group (n=30)			
	1 st day (pre test)		7 th day(post test)		1 st day(pre test)		7 th day(post test)	
	Fer	Per	Fer	Per	Fer	Per	Fer	Per
optimal (<120)	-	-	15	50	-	-	4	13.3
Normal (<130)	-	-	11	36.7	-	-	-	-
High normal (130-139)	-	-	-	-	-	-	3	10
HTN-stage-1 (140-150)	3	10	4	13.3	4	13.3	16	53.3
HTN-stage-2 (160-179)	18	60	-	-	11	36.7	16	53.3
HTN stage-3 (≥180)	9	30	-	-	15	50	2	6.7
Total	30	100	30	100	30	100	30	100

Table-1 Shows with regard to pretest and post test regard in 1st and 7th day for BP level in experimental group, 1st day 3(10%) had stage I hypertension, 18(60%) had stage II hypertension and 9(30%) had stage III hypertension. Whereas post test, 15(50%) had optimal, 11(36.7%) had normal, 4(13.3%) had stage I hypertension.

In control group 1st day 4(13.3%) had stage I hypertension, 11(36.7%) had stage II hypertension and 15(50%) had stage III hypertension. Whereas post test, 4(13.3%) had optimal, 3(10%) had high normal, 16(53.3%) had stage I hypertension, 5(16.7%) had stage II hypertension and 2(6.7%) had stage II hypertension.

Discussion:

❖ With regard to the effectiveness of foot bath therapy

on systolic blood pressure among hypertensive clients between experimental group and control group.

❖ In experimental group mean **1150** and SD is **6.1913**; In control group mean **1870.7** and SD is **7.8966**. The calculated value of Independent ‘t’ test value is **C=3.3491** and Table value is **T= 2.05**. The calculated value is greater than the table value. The study shows that there is statistically significant reduction of blood pressure level among hypertensive clients in experimental group as compared to control group.

❖ **With regard to** the effectiveness of foot bath therapy on diastolic blood pressure among hypertensive clients between experimental group and control group.

❖ In experimental group mean **1010.8** and SD is **5.804**; In control group mean **1760** and SD is **7.695**. The calculated value of Independent ‘t’ test value is **C=1.8939** and Table value is **T= 2.05**. The calculated value is less than the table value. The study shows that there is statistically significant reduction of blood pressure level among hypertensive clients in experimental group as compared to control group.

Conclusion: The conclusion drawn from the study was that there was significant reduction in Blood Pressure in experimental group as compared to the control group. This shows that foot bath technique is effective in hypertensive clients.

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