



Original Research Article

Effectiveness of Jacobson's Relaxation Technique in Hypertension

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ABSTRACT

Study design: Randomized Controlled Trial.

Objective: To find out the effectiveness of Jacobson's relaxation technique in hypertension.

Background: World health Organization has recommended non- pharmacological approaches as an adjunctive treatment for hypertension. However, little evidence exists to indicate the effectiveness of physiotherapeutic interventions like Jacobson's relaxation technique.

Methods and measures: The sample consisted of clinically diagnosed 56 subjects with hypertension. Subjects were randomly treated with medications along with Jacobson's relaxation technique under supervision or only medications for three weeks. Their pre and post intervention blood pressure was measured in supine with digital blood pressure monitor for further analysis.

Results: The average reduction in blood pressure was significantly greater in subjects treated with Jacobson's relaxation technique along with medications as compared to only medications.

Conclusion: Jacobson's relaxation technique can be used as an adjunctive intervention in the treatment of hypertension.

Keywords: Jacobson's relaxation, hypertension and non pharmacological treatment.

INTRODUCTION

Hypertension is ranked as fourth top most disease on the basis of its prevalence.^[1]

Since many of the individuals who suffers from hypertension do not have specific symptoms related to their elevated blood

pressure, it is often called as the silent killer disease.^[2] Probably, hypertension is a major health problem and biggest challenges of the 21st century. It affects approximately one billion individuals worldwide.^[3] In India, the prevalence of hypertension in adult population varies from

3 to 10% and the average figure is 4.8%. The population at risk above the age of 20 years is 330 million as per 1981 population figures.^[4]

High blood pressure is major risk factor for cardiac, cerebral and renal disease.^[2] Hypertension experts still debate the level of blood pressure considered abnormal. A great deal of effort has been devoted to search for a dividing line between normotension and hypertension. Systolic blood pressure above 140 mm Hg and or diastolic blood pressure above 90 mm Hg is the currently accepted dividing line based on epidemiological and interventional studies.

From 1983 onwards, World Health Organization⁵ recommended the use of non-pharmacological approaches in the treatment of hypertension. Various non pharmacologic measures for hypertension includes; life style modification, weight reduction, regular physical exercises, cessation of smoking, tobacco use cessation, increase in intake of fruits & vegetable, reduction in alcohol, sodium intake and potassium supplementation. It has been reported that relaxation therapies like imageries may be helpful in lowering blood pressure but there is hardly any study that has investigated the effectiveness of Jacobson's relaxation technique that basically involves physical and mental relaxation that may help in lowering the blood pressure in hypertension.

MATERIALS AND METHODS

A randomized control trial was conducted at Department of Physiotherapy, Pravara Rural Hospital, Loni, Maharashtra state, India from 5th July 2010 to 30th August 2011.

Subjects: A total of 130 subjects with a clinical diagnosis of hypertension were screened to find out their suitability for the study. However, only 59 subjects were found suitable to participate in the study

when these subjects were requested to participate in the study only 56 subjects participated and completed the study. The inclusion criteria were clinical diagnosis of hypertension, age in between 40 to 60 years and willingness to participate in the study. Exclusion criteria included uncontrolled hypertension, presence of any associated systemic disease or any clinical situations where isometric muscle contractions or exercises were contraindicated.

Equipments: The equipment used for this study was Citizen digital automatic battery operated blood pressure apparatus CH-403 manufactured by Citizen, India that can measure with pressure in the range of 0 to 280mmHg with an accuracy of ± 3 mmHg. This equipment was used for recording systolic and diastolic blood pressure.

Procedure: Subjects were informed about the procedure and were requested to sign an informed written consent. Following informed consent, each subject underwent a standardized history and physical examination as well as the data was collected for the baseline blood pressure measurement then subjects were randomly allocated to control group or experimental group. Control group continued their medication as per the advice of Physician and experimental group subjects received supervised Jacobson's relaxation along with medication advised by their physician. For Jacobson's relaxation, the investigator demonstrated how to contract and relax various groups of muscles, then how to coordinate contractions and relaxations with deep breaths and then how to perform the entire procedure with eyes closed in supine lying. After the trial session every subject performed this supervised relaxation for 6 repetitions during a single session on once a day basis for three weeks. At the end of three weeks post intervention, blood pressure was measured for experimental and

control group subjects so as to analyze the data.

RESULTS

Out of fifty nine subjects that were enrolled for this study, only fifty six subjects completed the study and three dropped out from the study because of their inability to take out time on regular basis from schedule or due to personal reasons. Majorities of these subjects were male (64.28%), married (96.42%) with family history of hypertension (85.71%) and smokers (21.42%). There were no baseline differences between the groups (table 1) and thus control group and experimental group subjects were comparable. Pre interventional blood pressure in control subjects (only medication) was $152 \pm 4.52/90.56 \pm 2.67$ and after three weeks (diagram 1), it was

$150.04 \pm 5.12/89.63 \pm 2.43$. On the other hand, pre interventional blood pressure of subjects who performed Jacobson's relaxation (along with medication) was $151.17 \pm 4.33/92.03 \pm 3.02$ and after three weeks (table 2) of Jacobson's relaxation, it was $142.79 \pm 5.19/86.56 \pm 2.51$. Thus the amount of systolic blood pressure reduction in control group was there was 1.30% and in Jacobson's relaxation group it was reduction 5.54%. Further, the amount of diastolic blood pressure reduction in control group was there was 2.13 % and in Jacobson's relaxation group it was reduction 5.94%. There was significant reduction in systolic blood pressure ($P < 0.0001$, $t = 5.146$ with 54 df), and diastolic blood pressure ($P < 0.0001$, $t = 5.506$ with 54 df) amongst subject treated with Jacobson's relaxation and control.

Table 1: Baseline characteristics

Variable	Control	Jacobson's relaxation
Age (Y)	54.0±9.9	52.2±9.2
Body mass index	25.3±5.1	27.1±5.8
Number of subjects	27	29
Sex		
Male	38%	27%
Female	62%	73%
Duration since diagnosis (months)	78.3± 92.7	69.8±79.7
Pre intervention Blood pressure (mm of Hg)		
Systolic	152 ±4.52	151.17±4.33
Diastolic	90.56±2.67	92.03±3.02

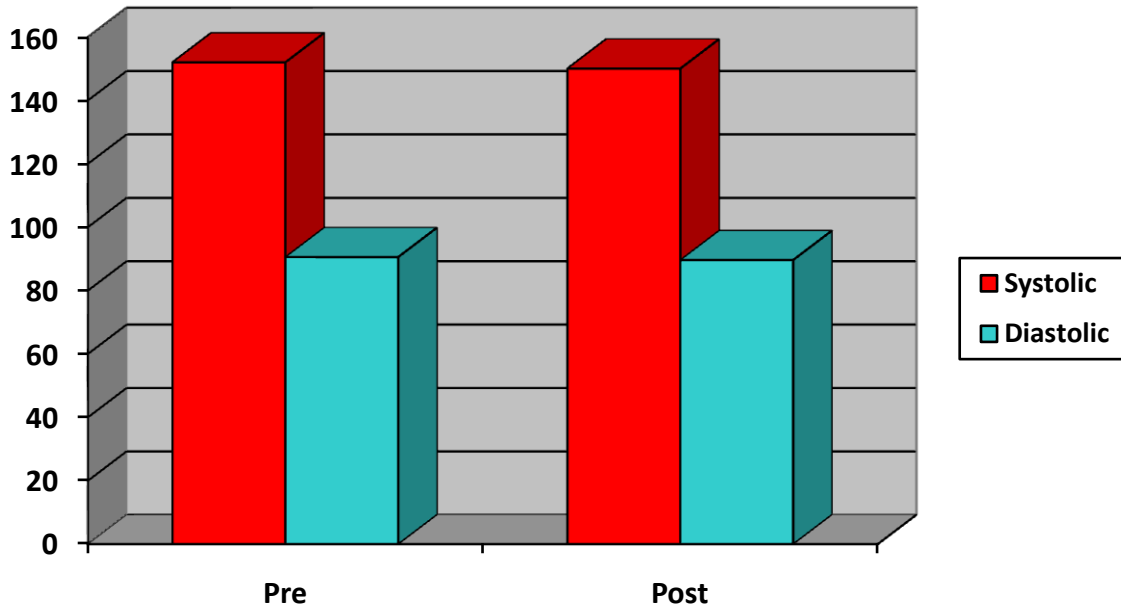


Diagram 1: Blood pressure values of control group

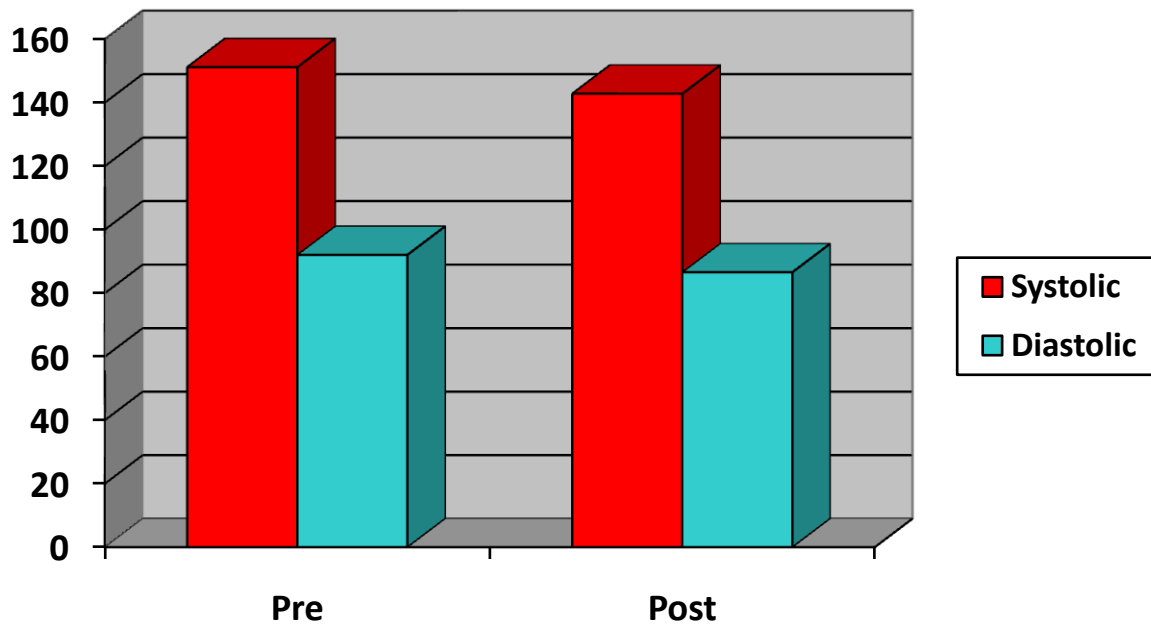


Diagram 2: Blood pressure values of experimental group

DISCUSSION

The results of this study suggests that hypertensive subjects who participated in Jacobson's relaxation technique in addition to their regular medication had better reduction in their blood pressure as compared to control group subjects who continued only their medication. This could be due to the effect of Jacobson's relaxation technique that involves physical and mental components in form of tensing and relaxing of muscle groups and focusing the difference between the feelings of the tension and relaxation. Further, it is believed that blood pressure may accompany anxiety; one can reduce anxiety by learning how to relax the muscular tension. This is partly in accordance with various studies [6, 7, 8,9,10] that reported the effectiveness of relaxation techniques including Jacobson's relaxation technique. Caution should be taken while interpreting the results of this study and this form of progressive muscle relaxation technique alone may not be as effective as antihypertensive medications in reducing blood pressure. It is believed that this study can be a valuable help for exercise prescription in subjects with hypertension without co-morbidity. Unanswered questions at this juncture include how long this effect will be carried forward and what will happen if the subjects discontinue their Jacobson's relaxation technique. In some of the subjects, there was immediate drop in blood pressure; question that arises here is why this could happen in a small number of the subjects and not all of the subjects. The limitations include sample size, study was delimited to the subjects in the age group from 40 to 60 years only, subjects with co morbidity were not included, study was done at institutional setup, a kind of controlled environment and there was short term follow up of subjects. Future, studies can be done with long term follow up and in

subjects with co-morbidity at different setups.

CONCLUSION

Jacobson's relaxation exercises can be used as complementary or adjunctive intervention in the management of hypertension.

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