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Effect of Manual Therapy in Hypertensive Patients

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Abstract:

Purpose: to evaluate the effects of Manual Therapy in Hypertensive Patients.

Methods: Sixty patients with primary hypertension were participated in this randomized clinical trial. The patients were randomly divided into two groups (control and an intervention group). We applied Manual Massage and manual muscle stretching program to the study group beside the medical treatment prescribed by the physician, but the control group takes only the medical treatment. In both groups, blood pressure was measured and recorded before and after the Manual Therapies applications for 3 months. The study data were collected by using carefully a questionnaire including demographic information, a check list of blood pressure record, and a fixed manometer.

Results: In the intervention group, systolic and diastolic blood pressure decreased remarkably in the Study group more than in the control group, respectively after Manual therapy massage ($P<0.001$).

Conclusion: The obtained results were indicative of the effectiveness of manual therapy in reducing blood pressure in the study participants. Using Manual Techniques, such as manual massage and Muscle stretching Program, is a simple, acceptable, and teachable method for families to control blood pressure. After conducting more studies on this issue, manual therapy can be recommended as a non-pharmacological method to control blood pressure.

Key words: Manual therapy; Muscle stretching; Hypertension; Massage

1. Introduction

Any One can deny that a major cardiovascular disease in the world is hypertension. Approximately 50 million adults (18 and over) suffer from high blood pressure in the United States.(1) In fact, Hypertension is a major cause of cardiovascular growth around the world.(2,4) The pressure of the Arterial Blood (BP) in excess of 140/90 mmHg is considered high as mentioned in the seventh Joint National Committee report of High Blood Pressure Prevention , Detection , Evaluation and Treatment (JNC7) .(3) Hypertension is the main risk factor for cardiovascular and chronic renal failure disorders, with high costs for both people and populations.(4) In the US, for example, over $10 billion was spent per year on this condition.(5) Osborn et al. also rolled that Alternative medicine products can be used as an effective treatment in decreasing BP, and that this approach is simple, readily available and cheaper than medicinal products.(6) Based on the statistics, one-fifth of the Iranian people (18.6%) over 15 years old suffer from this disease.(7) In order to alleviate stress and monitor Blood Pressure, Olney et al. suggested supplementary medicines.(4) Taking into account BP's physiopathology and the effective massage therapy, massage relaxation can help the parasympathic nerve to reply and thus reduce

the rate of heart, BP and anxiety.(8) Changes in the neural cycles in the sensory massage lead to variable activation in autonomous nervous system, such as the BP system of regulation.(9) Systolic BP grows during the acute stress, but only after long-term stress increases diastolic Blood Pressure. Diastolic BP may be reduced over time due to ongoing sensory stimulation.[11] Aourell etal., suggested that repeated sensory stimuli may lead the neural currents and automatic system activity to improve during massage, thereby the BP and cardiac heart rate may be improved. (10) The size of the samples of some studies was small, while other studies examined only women or men with hypertension; also the number of the sessions of manual therapy was low in some other studies. This research therefore attempts to close the differences that existed in past studies. In the patients with essential type of hypertension, we intended to evaluate the result of the impact of manual therapies as a non-invasive method of treatment. This study can therefore help patients of hypertension with minimal use of facilities to control the disease and to prevent serious complications.

2. Patients and Methods

2.1. Participants

Sixty Patients were included in this randomized trial which was performed at Met-Ghamr Public Hospital. In this research, after internal medicine physician's diagnosed primary hypertension, all the study involved patients had been sent to us. We randomly collect the two samples patients depending on the criteria of inclusion of this study, Afterwards, all study patients had been signed a will written informed consents and their BP was checked and measured to be more accurate. Sampling had been lasted for one month. And we applied then, the study methods of manual therapy; soft tissue massage by therapist hands besides using of plant oil (Olive Oil) after explaining the important role of it to the patients. All of Patients were collected from referrals from internal medicine physicians. Individuals were allocated randomly to equal groups (30 patients in each group) using a computer numbers generated randomly in a table and concealed allocation will be done by a hidden sealed opaque uni-color envelopes. Actual sample size had been calculated by G*power which depend on a small pilot study before starting study to determine the effect size. All of patients had been informed actually about the procedure and signed the consent prepared for the evaluative study, So that the study followed the instructions of the ethical rules committee of the faculty of physical therapy, Cairo University.

2.2. Instrumentation:

2.2.1. Therapeutic Interventions

The study group was received 3 sessions per week for 12 weeks beside the medical treatment. But the control sample group takes only the medical Treatment. The criteria of inclusion of this evaluative study ruled to select patients whom not suffering from any of disorders of mentality, also aging between 30 and 50 years old, provided that they are not participating in any other therapeutic relaxation maneuvers or massaging programs, also not having any medical history of decreased Blood Pressure (hypotension), also without any of skin disorders, burns or spinal disturbances, also patients have not to take any of Depression drugs or pain-killers drugs at least 6 months from the evaluation and accurate diagnosis of increased BP (hypertension), also patients have not to take any of drugs more than one or two types at least of antihypertensive drugs, not changing the medications used during intervention, systolic arterial blood Pressure of 125 –180 mmHg, diastolic arterial Blood Pressure of 75 –115 mmHg, and also without Diabetes Mellitus or any other diseases, such as renal problems, tumors, or congenital heart defects, that may be increase Blood Pressure. Any patients whom are not identical to the criteria of inclusion were not recruited into the study.

2.2.2. Measurement equipment and tools

2.2.2.1. Demographic questionnaire:

Samples have been carefully collected through a convenient sampling procedure. At first, all patients had been checked and investigated for the criteria of inclusion and every one had been chosen to enter into the evaluative study had been filled out the demographic questionnaire of his information's and the ideal written informed consents.

2.2.2.2. Blood Pressure measuring equipment's:

Measuring of Blood Pressure in this study by using of sphygmomanometer and stethoscope standardized device.

2.3. Procedures of the study:

Evaluative Study protocol was explained completely for every patient before starting the

assessment, and a written consent form was signed by each patient before starting interventions. The treated patients were instructed to report any side effects during sessions of interventions.

2.3.1. Therapeutic Procedures:

In this study, manual therapy techniques had been performed by two graduated physiotherapists. The manual therapy massage was applied manually from the neck region to the lower back and sacral region (from cervical to lumbosacral region) with graduated compression (including a static muscular pressure, one muscle or part of it, applying and then releasing pressure, proceeding to adjacent areas and repeating), and then the program of Muscle stretching (Lumbosacral muscles, Hamstrings and Calf muscles stretching). In both groups the control and study groups, all of patients had been rested carefully for about fifteen minutes before measuring their Blood Pressure for recording. Blood Pressure was recorded before the beginning of the intervention and also after intervention. In the sample of study group, a plant oil (such as normal olive oil product) had been rubbed skinny with soft movements manual massage all over the back of the patient and back manual massage had been performed on the neck muscles region comprehensively to the lumbosacral area (from cervical region to lumbosacral region) for 15 minutes.

2.3.2. Measurement tools:

After the sessions and interventions of manual therapy massage, we recorded BP and it had been recorded by heart specialist another time to be more accurately measures. Patients rested for 15 min in the control group and BP was recorded afterwards. Study data were collected by means of a questionnaire including demographic information and a checklist of BP records, Data analysis after data collection, statistics were entered in the SPSS statistical software (v. 15). Demographic data was analyzed using t-test and chi-square tests.

Data analysis

After data collection, they were entered into the SPSS statistical software (v. 15).The demographic data was analyzed using t-test and also chi-square test. And based on our recording we calculate the means and standard deviations at different measuring times, $P < 0.05$ was proved to be significant statistically. The mean age was 47.35+8.20 and 46.80+8.15for intervention and control groups respectively with no statistically significant difference P=0.17.

Table (1): Demographic Data of the Patients

Variable		Intervention	Control	Used test and P value
Sex	Male	12	13	**Chi-square P=0.67**
	Female	18	17	
Marital Status	Widowed	5	7	**Chi-square P=0.73**
	Single	2	1	
	Married	22	23	
Occupation	Employee	12	13	**Chi-square P=0.42**
	Self-employed	10	9	
	Retired	1	2	
	Housewife	7	6	

Table N.2: Descriptive Statistics of the Patients

Parameters	G1	G2	T	P
Systole pre-test	146.333+ 11.739	147.167 +11.721	-.27	**.78**
Systole post-test	129.500+ 9.9438	147.833 +11.039	-.27	**.78**
T	16.793	4.419		
P	.000	.142		
Diastole pre-test	89.6667+ 5.8624	90.1667+5. 9427	-.32	**.74**
Diastole post-test	78.6667+ 6.8144	90.6667+4. 8329	-5.4	**.00**
T	18.137	-1.508		
P	.000	.131		

3. Results

Study group contained of 18 females and 12 males, while the control group contained of 17 females and 13 males. Comparison the double groups have been presented in tables with no significant difference was observed between evaluative groups regarding to sex, marital status, occupation, and also age.

The differences in arterial systolic or diastolic BP had been compared between the study and the control sample group Pre and Post Intervention and the results of e measures ANOVA indicate that a very good differences were statistically significant ($P<0.001$). on arterial systolic and diastolic Blood Pressure in the two groups was assessed using ANOVA, and the results have been depicted in tables with an obvious decrease in systolic and diastolic BP was clinically significant in the intervention group more than in the Control Group.

Discussion:

In This Study, The manual therapy massage was applied manually from the neck region to the lower back and sacral region (from cervical to lumbosacral region) with graduated compression (including a static muscular pressure, one muscle or part of it, applying and then releasing pressure, proceeding to adjacent areas and repeating), and then the program of Muscle stretching (Lumbosacral muscles, Hamstrings and Calf muscles stretching). A similar randomized clinical trial about the effect of back massage on blood pressure in the patients with

primary hypertension in 2012-2013 by Zinat Mohebbi et al. used a massage program without manual stretching program and also the program had proven good statistical results in 6 weeks massage program with a measuring Closely before and after every session.(19) But in this study we use a long term treatment program for Three months and we measure before and after the course for more accuracy of evidence. The outcome of the present research has shown that the means of arterial diastolic and systolic Blood Pressure in patients in the study group have decreased substantially more than in the control group following the treatment. Therefore, the findings showed that manual massage therapy is successful in control of Blood Pressure. In the same way, a test in china Hon. Kong found that the surface stroke massage was performed 10 minutes.16 The effect on BP, cardiac rate, and inflames of the inflammatory marks of women with hypertension was also investigated in a similar study. This study divided the participants into a protocol and a control group consisting of eight patients. The findings showed that the arterial systolic and diastolic BP were significantly reduced after the fourth session. (14) One other study in Karolina city was evaluated the effect of manual massage by superficial stroking method on the mental and physical symptoms of the rehabilitated patients. And the findings of study demonstrated that a significant reduce in Blood Pressure after intervention. (15) However, in this analysis, both the intervention and the control group were used by the participants.12 but, another study on massage showed no significant changes in the arterial systolic and diastolic Blood Pressure.13 Nonetheless, all the results of studies by Christin M. Olney, Mohammad Reza et al., showed that manual massage therapy considerably was decreased dia. and sys. blood pressure. (4, 13-18) this is a very significant indication of the effect of this physical method on reducing arterial BP in the elderly individuals with hypertension.

Conclusion:

According to the results of the present study, Manual therapy program of massage and muscle stretching may be of good result in decreasing systolic and diastolic BP in the patients with hypertension. Thus, after conducting more studies on this issue, manual massage and muscles stretching could be recommended as a physical and a non-invasive method of treatment for BP control in essential type of hypertensive patients.

Recommendations:

The effect of Manual Stretching program only in comparison to manual massage program

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Conflict of Interests

Authors declare no potential conflicts of interest.

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