**Effectiveness of Foot Massage on Quality of Sleep among Patients with Hypertension**

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**ABSTRACT:**

**Background:** Hypertension is considered as common risk factor for developing cardiovascular diseases. The most number of patients cannot easily maintain a healthy blood pressure. Therefore, lifestyle modifications are important and may include getting enough sleep.

**Objective:** study investigated the Effectiveness of Foot Massage on Quality of Sleep among Patients with Hypertension

**Methods:** The experimental design was used to conduct the study among patients with hypertension patients in Krishna Hospital, Karad. Totally 60 patients were allotted 30 each in the experimental and control groups by convenient sampling. After obtaining permission from the setting, the patients were asked their willingness to participate in the study and informed consent was obtained. After collecting the demographic data, the pre-test level of Sleep were assessed in the experimental and control groups. After the pre-test, the experimental group received foot massage and control group were follow hospital routine management and the post-test level of sleep was assessed by the same tool.

**Results:** Result of the present study shows that control group mean was 20.733 and S.D 3.226 whereas in experimental group mean was 22.46 and SD was 2.751 unpaired t-test value was 2.07 and p-value was 0.0474.

**Conclusion:** Foot Massage was found effective to improve the quality of sleep among hypertensive patients.

**Keywords:** Foot Massage, Quality of Sleep and Hypertension

**Introduction:**

Hypertension is defined as persistent elevation of systolic blood pressure (SBP) at a level of 140 mm hg or higher & diastolic blood pressure (DBP) at a level of 90 mm hg is higher. The higher the blood pressure greater the risk for heart attack, heart failure, stroke, & kidney disease.1 Quality sleep is vital to health and wellness.  According to the Centers for Disease Control (CDC): "Insufficient sleep is associated with a number of chronic diseases and conditions such as diabetes, cardiovascular disease, obesity, and depression which threaten our nation’s health.2

The prevalence of hypertension 69.9 and 59.9 per 1000 population in urban population and 35.5 & 35.9 per 1000 in the rural population in India. High blood pressure is a major risk factor for developing diseases of stroke, congestive cardiac failure, heart attack, & kidney failure.3 Sleep is actually an active and organized process. Person becomes relatively inactive and unaware of the environment during the sleep. Sleep is a partial detachment from the world, where most external stimuli are blocked from the senses.4 Sleep is governed by a number of factors. Some of the factors are under our control, such factors help us to check our sleep level, and there are some factors beyond our control.5

The purpose of massaging is to give comforts such as general relaxation in body, Reducing pain perception, good sleep, by affecting the locomotors system and the nervous system as well as cardiovascular system.6 Hypertension or high blood pressure is one common ailment in adults. WHO estimates that high blood pressure leads to over 7 million deaths each year, about 13% of the total death worldwide. If people lower their blood pressure they are less likely to die or to have heart attacks and strokes. According to World Health Report 2002, cardiovascular diseases will be the largest cause of death and disability by 2020 in India. The contributing factors for the growing burden of CVDs are increasing prevalence of cardiovascular risk factors especially hypertension, dyslipidemia, physical inactivity and to because. Apart from blood pressure medication, diet, life style changes, alternative treatment are essential in treating essential Hypertension.7

Hypertension is considered as common risk factor for developing cardiovascular diseases. The most number of patients cannot easily maintain a healthy blood pressure. Therefore, lifestyle modifications are important and may include getting enough sleep.8 Similarly, research suggests that appropriate sleep duration can help to lower the prevalence’s of hypertension, cardiovascular-related mortality, obesity, and metabolic syndrome.9 Obtaining the proper amount of sleep may help prevent or treat hypertension.10 So one of the nurses’ measurements and responsibilities for promoting patients’ health is performing some measurements for improving their sleep quality.11 Actually massage is a standard nursing intervention and it is an important part of health care.12

**Methods:**

The experimental design was used to conduct the study among patients with hypertension patients in Krishna Hospital, Karad. Totally 60 patients were allotted 30 each in the experimental and control groups by convenient sampling. The samples included in this study were who fulfilled the inclusion criteria with who were hospitalized for 1-2 days, who were able to verbalize their sleep pattern and who could speak and understand Marathi or English. Samples with Unconscious, Post operative patient, not willing to participate and taking medication for sleep were excluded from the study. Research Ethics Committee of the Krishna Institute of Medical Science Deemed University, Karad, had given permission before the data collection. After obtaining permission from the setting, the patients were asked their willingness to participate in the study and informed consent was obtained. After collecting the demographic data, the pre-test level of Sleep were assessed in the experimental and control groups. After the pre-test, the experimental group received foot massage and control group were follow hospital routine management and the post-test level of sleep was assessed by the same tool.

**Results:**

In control group out of 30 patients Majority 10(33%) were in age group of 56-60 years. Whereas 9(30%) were in age group of 46-50 years and in Experimental group out of 30 patients Majority 9(30%) were in age group of 56-60 years, 9(30%) were in age group 46-50 years, In control group 15(50%) were males and 15(50%) were females. On the other hand in Experimental group out of 30(100%) patients having foot massage 15(50%) were males. Whereas 15(50%) were females.In control group out of 30(100%) patients majority 20(67%) were Hindu, 10(33%) were Muslim and in Experimental group 20(67%) were Hindu, 9(30%) were Muslim. In control group most of the samples 9(30%) were not having formal schooling, 6(20%) were graduate, 5(17%) were taken secondary education and in Experimental group 10(33%) were not taking formal education, 9(30%) were taken higher secondary education. In control group majority18(60%) were working, 12(40%) were not working and in Experimental group 15(50%) were working, 15(50%) were not working. In control group 23(77%) were married, 6(20%) were widow and 1(3%) were un-married and in Experimental group 24(80%) were married, 4(13%) were widow and 2(6%) were un-married.In control group 17(57%) were live in urban area, 13(43%) were live in rural area and in Experimental group 15(30%) were live in urban area, 15(30%) were live in rural area.

**Table no.1 Sleep pattern among hypertensive patients:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sleep Pattern** | | **Control** | **Experimental** | **P-value** | **Odds Ratio** | **95% CI** | |
| Bed Time | ≤12 O’ Clock | 12(20) | 23(38) | 0.0082 | 0.2029 | 0.06633 | 0.6206 |
| ≥1 O’ Clock | 18(30) | 7(12) |
| Fall asleep each night | >30 min. | 23(38) | 5(8) | 0.0001 | 14.429 | 4.567 | 59.091 |
| ≤ 30 min | 7(12) | 25(42) |
| Gotten up in  morning | ≤ 5 O' Clock | 20 | 9 | 0.0092 | 4.667 | 1.57 | 13.87 |
| ≥ 6 O' Clock | 10 | 21 |
| No. of hrs. actual sleep | < 6hrs. | 19 | 3 | 0.0001 | 15.545 | 3.813 | 63.381 |
| ≥ 6 hrs. | 11 | 27 |

**Sleep pattern among hypertensive patients:**

Table no.1 reveals sleep quality aspect of bed time each night hypertension patient with disturb of sleep. In control group 12(20%) bed time were before 12 O’ Clock and 23(38%) bed time were after 1 O’ Clock. In experimental group 18(30%) bed time were before 12 O’ Clock. and 7(12%) bed time were after 1 O’ Clock. We go for Fisher’s exact test and here odds ratio was 0.2029 with 0.06633 to 0.6206 CI. Also P-value was 0.0082 i.e. P< 0.05; Hence we can said that there was significant difference in bed time between control group and experimental group.

Regardingsleep quality aspect of fall asleep each night hypertension patient with disturb of sleep. In control group 23(38%) fall asleep after 30 Min. and 7(12%) fall asleep before 30 Min. On the other hand in experimental group 5(8%) fall asleep after 30 Min. and 25(42%) fall asleep before 30 Min. Fisher’s exact test and here odds ratio was 14.429 with 4.567 to 59.091 CI. Also, P-value was 0.0001 i. e. P < 0.05; hence we can say that there was significant difference in fall asleep time between control group and experimental group.

In relation to sleep quality aspect of gotten in the morning hypertension patient with disturb of sleep. In control group 20(33%) gotten in the morning after 5 O’ Clock and 10(17%) gotten in the morning after 6 O’ Clock. On the other hand in experimental group out of 30(100%) patient’s 9(15%) gotten in the morning after 5 O’ Clock and 21(35%) gotten in the morning after 6 O’ Clock. Fisher’s exact test and here odds ratio was 4.667 with 1.570 to 13.870 CI. Also P-value was 0.0092 i.e. P < 0.05; hence we can say that there was significant difference in gotten up in the morning between control group and experimental group.

Regarding sleep quality aspect of no. of hour’s actual sleep of hypertension patient with disturb of sleep. In control group 19(32%) were more than 6 hrs. of sleep and 11(18%) less than or equals to 6hrs. of sleep. On the other hand in experimental group out of 30(100%) patient’s 3(5%) were more than 6 hrs. of sleep and 27(45%) less than or equals to 6hrs. of sleep. We go for Fisher’s exact test and here odds ratio was 15.545 with 3.813 to 63.381 CI. Also P-value was 0.0001 i.e. P < 0.05; hence we can say that there was significant difference in no. of hrs. actual sleep of patient between control group and experimental group.

**Table no.2: Quality of sleep among patients with hypertension:**

|  |  |  |
| --- | --- | --- |
| **Score Level** | **Control Group** | **Experiment Group** |
| Good | 3(10) | 20(66) |
| Average | 21(70) | 8(27) |
| Poor | 6(20) | 2(7) |

**Quality of sleep among patients with hypertension:**

Table no.2 reveals that in control group maximum 21(70%) were average sleep level, 6(20%) were poor sleep and 3(10%) were good sleep. Whereas in Experimental Group maximum 20(66%) were good sleep, 8(27%) were average sleep and remaining 2(7%) were poor sleep. Hence we can easily conclude on percentage value after applying intervention that is foot massage getting chance of good sleep was more as compared with control group.

**Table no.3: Mean difference between control group and experimental group.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study Variables** | **Mean** | **S.D** | **Unpaired t-test** | **P-value** | **Inference** |
| Control Group | 20.733 | 3.226 | 2.07 | 0.0474 | Significant |
| Experimental Group | 22.46 | 2.751 |

**Effectiveness of Foot Massage on Quality of Sleep among Patients with Hypertension:**

Table. No.3 reveals that mean difference between control group and experimental group during foot massage therapy of hypertension with sleep disturb patient in rural tertiary care hospital karad. Here we go for unpaired t-test. In control group mean was 20.733 and S.D 3.226 whereas in experimental group mean was 22.46 and SD was 2.751 unpaired t-test value was 2.07 and p-value was 0.0474 with mean difference -0.07667 with 95% C.I was -2.574 to 1.041 and correlation coefficient was -0.1112. Significant value shows there was effect of foot massage therapy.

**Discussion:**

Result of the present study shows that In control group mean was 20.733 and S.D 3.226 whereas in experimental group mean was 22.46 and SD was 2.751 unpaired t-test value was 2.07 and p-value was 0.0474 with mean difference -0.07667 with 95% C.I was -2.574 to 1.041 and correlation coefficient was -0.1112. Significant value shows there was effect of foot massage therapy.

Findings of the present study supported following study a study conducted by Khodayar Oshvandi et al. Results showed that there is a significant difference between the scores mean of quality of sleep before and after foot massage in experimental group (p=0.002). But there was no significant difference between the scores mean of quality of sleep before and after receiving usual care in control group (p= 0.964). There was no significant difference between the scores mean of quality of sleep in the two experimental and control groups before foot massage (p=0.64). But there was significant difference after the intervention (p= 0.01).13

Farideh Malekshahi et al. Foot massage was performed for 10 minutes during the dialysis, three times a week for 4 consecutive weeks. Changes in Pittsburg score showed that foot massage was effective in sleep quality of experimental groups and Freedman statistical exam showed that nightly sleep duration increased and generally with repeating the intervention, the sleep status of patients became better per week compared to the previous week p<0.001 Concerning the results of present research, it can be concluded that foot massage has a desirable effect on sleep quality of HPs and can be executed and trained as a useful way to improve the sleep quality of patients in hemodialysis unit.14

**Conclusion:** Based on the analysis of the findings,the study concluded that Foot Massage was found effective to improve the quality of sleep among hypertensive patients.

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**Conflicts of interest:** There are no conflicts of interest.

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