

Effectiveness of Back Massage on Sleep Pattern among Patients with Congestive Cardiac Failure

Abstract

Background: Sleep plays an important role in congestive cardiac failure (CCF). Back massage reduces anxiety, discomfort, and physical suffering in CCF patients. Study objective is to assess sleep pattern in CCF patients before and after back massage. **Materials and Methods:** A quasi-experimental study was conducted in Pravara Rural hospital, Loni, India over 4 months in 2016. Thirty CCF patients were included in the study with purposive sampling. Nurse investigator performed 20-min back massage thrice daily, 5 min for each step from the day of admission till discharge. In back massage, effleurage, stroking, kneading, and assessment of effectiveness was recorded using the Pittsburg sleep quality index. **Results:** Thirty CCF patients were included, out of which individuals aged >65, 56–65, and 35–45 years age group were 40%, 24%, and 13%, respectively. Twenty-four had left and 6 had right heart failure. Distribution of mean and standard deviation of pretest for sleep quality was 9.50 (3.14), indicating poor sleep quality. Posttest, the mean score was 4.47 (0.89), indicating good quality sleep. Eleven patients had >8 h of sleep, 15 patients had 6–8 h of sleep, whereas 4 patients had less than 6 h of sleep pretest. Posttest, 22 patients had >8 h and the remaining had 6–8 h of sleep. **Conclusions:** Back massage technique is safe and cost-effective in CCF patients, by which the quality and duration of sleep is improved. It can be a part of the standard treatment.

Keywords: Back massage, congestive cardiac failure, insomnia, pittsburgh sleep quality index

Introduction

Heart failure is a major noncommunicable disease with an increasing burden all over the world. Prevalence of sleep disturbance is 45–82%.^[1] Pharmacological and nonpharmacological treatment are known, however, pharmacological treatment is common. Long-term use of medication causes tolerance and dependence. Nonpharmacological methods definitely have benefits.^[2] The prevalence of heart failure is over 23 million worldwide.^[3] Countries in south Asia region are undergoing an epidemiological transition and hence facing the double burden of infectious and noncommunicable diseases. The prevalence of hypertension, diabetes mellitus, obesity, and smoking is on the rise in this region. This is likely to escalate the prevalence of heart failure in south Asia.^[4] Standard management of heart failure by pharmacological method is using angiotensin converting enzyme inhibitors and β -blockers. The treatment of heart failure patients using such drugs

might adversely affect sleep and patients may develop insomnia.^[5] To overcome such problems, pharmacological and nonpharmacological modalities are being adopted.

Massage therapy is the manipulation of soft tissue of body parts that helps in improving the quality of health by relaxation or by improving sleep.^[6] Massage techniques is a part of traditional Chinese and Indian medical care. Though it is an ancient form of treatment, it is now gaining popularity not only in normal individual but also in critically ill patients. Massage therapy was earlier administered by hands only technique, however, innovation in the field has led to the development of mechanical devices that provides effective massage therapy.^[7]

There are different way of massage therapy; to name a few, Swedish massage, Shiatsu, Rolfing, reflexology, and craniosacral therapy.^[7] Sleep is defined as a normal physiological state of altered consciousness during which the body rests or simply as a

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normal suspension of consciousness.^[8] It plays an important role in various pathological states, including in heart failure cases, wherein heart rate is decreased to normal physiological value, thereby decreasing the workload and oxygen requirement by heart muscle. Congestive cardiac failure (CCF) is a state wherein the heart fails to maintain adequate blood supply to the tissues to meet the metabolic demands. It is a major cause of mortality and morbidity among cardiac diseases. Sleep disordered breathing is commonly seen in heart failure patients, and is associated with adverse prognosis.^[9] Insomnia and stress are two important factors which can increase the workload of the heart, and hence, increasing the morbidity and mortality rate in patients with CCF. An effective nursing interventions that can promote sleep and interventions, such as back massage, focusing on the body–mind connection should be implemented in critical care units. Since there was a need to study the effectiveness of nursing interventions such as back massage therapy for sleep promotion in CCF patients, this study was conducted.

Materials and Methods

The study was conducted among 30 patients admitted in Pravara Rural Hospital, Loni, Maharashtra, India in 2016. Pretest and posttest design was used to evaluate the effectiveness of back massage on sleep pattern among CCF patients. Sample size comprised 30 CCF patients. Nonprobability method, purposive sampling technique was used to choose the samples for the study based on the inclusion and exclusion criteria. An informed consent was obtained before conducting the study from all CCF patients who were considered for the study. The study was conducted in three stages i.e., (a) Conduction of pretest; (b) Implementation of intervention (i.e., back massage); and (c) Conduction of posttest. Content validity of the structured questionnaire and intervention (back massage) was established by consultation with experts such as the department of medical surgical Nursing, department of cardiology, cardiorespiratory physiotherapy, statistics, and language expert. The tool was modified according to the suggestion and recommendation of experts. Reliability of the tool was tested by implementing the structural questionnaire on 5 CCF patients who were admitted in Pravara rural hospital Loni Budruk (BK) other than the sample region. The interrelated reliability method was used to test the reliability of tool, and the *r* value was 0.9, indicating that the structured questionnaire was reliable. Patients who were diagnosed as CCF, aged 25 years, were willing to participate in the study, and able to understand and speak regional language, i.e., Marathi were included in this study. The exclusion criteria included acutely ill CCF patients, patients on invasive mechanical ventilation, having bleeding tendency, infectious dermatological diseases, receiving sedatives/anxiolytics, and/or on opioid treatment.

After the pretest, the nurse investigator implemented the intervention, i.e., back massage to the CCF patient. Techniques in back massage were (a) effleurage, (b) stroking, (c) kneading, (d) tapotement with a total time of 20 min (5 min each), three times in a day (i.e., 8 am, 3 pm, and at 8 pm) from the first day of the admission to the final day of hospital stay (on the day of discharge). Effleurage implies stroke which is a unidirectional manipulation in which the operator's hand passes from distal to proximal with a depth compatible with the state of the tissues and the desired effect. Stroking is a unidirectional manipulation in which the operator's hand passes usually from proximal to distal down the length of the tissues at a depth and speed compatible with the required effect. Kneading is a circular manipulation performed so that the skin and subcutaneous tissues are moved in a circular manner on the underlying structures.

d) Tapotement it is the tapping, slapping, chopping cupping done at the end of the session to help the muscles regroup and relax even more. This is kind of like a “finishing touch” with a light rubs down at the very end from the therapist's fingertips. The back massage was carried out along with medical line of treatment. Before performing the study, the technique, advantages and disadvantages were informed to subjects participated in this study. The confidentiality and privacy of every patient data were maintained. We ensured that this experiment does not potentially harm the participants.

Ethical considerations

This study was conducted after obtaining institutional ethical clearance and written informed consent. The participants and the relatives were informed about the purpose and design of the study and also assured of the maintenance of confidentiality. The option of quitting from the study at any given point of time if the patient feels so.

Results

A total of 30 patients who were diagnosed as having CCF were studied. Out of the 30 patients, 13 patients were males and 17 patients were females, indicating that CCF is commonly seen in females than males. The percentage of CCF in participants aged >65, 56–65, and 35–45 years group were 40%, 24%, and 13%, respectively, indicating it is common among elderly. Twenty-four (80%) and 6 (20%) patients were diagnosed as left-sided and right-sided

Table 1: Assessment of effectiveness of back massage on sleeping pattern among congestive cardiac failure patients

Area	Pretest	Posttest	Difference in mean
	Mean (SD)	Mean (SD)	
Sleep quality	9.50 (3.14)	4.47 (0.89)	5.03

Unpaired *t* test, *P* = <0.0001 (Extremely significant)

Table 2: Assessment of effectiveness of back massage on, time taken to fall asleep among congestive cardiac failure patients

Time taken (Min)	Pretest	Posttest	Difference in percentage
	Frequency (Percent)	Frequency (Percent)	
<15 min	13 (43)	25 (83)	40
>15 min	17 (57)	5 (17)	40

The chi-square statistic is 10.33. The *P*-value is 0.001

Table 3: Assessment of effectiveness of back massage on, duration sleeps among congestive cardiac failure patients

Duration sleep (hours)	Pretest	Posttest	Difference in percentage
	Frequency (Percent)	Frequency (Percent)	
<6 h	4 (13)	0 (0)	13
6-8 h	15 (50)	8 (27)	23
>8 h	11 (37)	22 (73)	36

Fischer Exact test, *P* value is 0.0048, (significant)

heart failure, respectively. Out of the 30 patients, 16 had mild, 11 had moderate, and 3 had severe degree of CCF. The effectiveness of back massage on sleeping pattern among CCF patients was assessed [Table 1]. Distribution of mean and standard deviation (SD) of pretest for sleep quality was 9.50(3.14), indicating poor quality of sleep. Posttest, the mean score was 4.47(0.89), indicating good quality of sleep, and the difference in mean was 5.03. Time taken to fall asleep among CCF patients was studied pre and posttest [Table 2]. Pretest, 57% of the patients had taken more than 15 min to fall asleep, whereas after the back massage, only 17% had the same. A comparison of duration of sleep was done in samples before and after back massage therapy [Table 3]. Paired *t*-test was calculated to analyze the difference in sleep quality before and after the back massage. At least 11 (37%) patients had more than 8 h of sleep, 15 (50%) patients had 6–8 h of sleep, whereas 4 patients (13%) had less than 6 h of sleep pretest. Posttest, 22 patients (73%) had more than 8 h of sleep and the remaining 8 patients (27%) had 6–8 h of sleep. No patients slept less than 6 hours after receiving back massage therapy.

Discussion

CCF is one of the major complications among patients having heart disease. Alleviation of anxiety, a good sleep is important factor in reducing the morbidity or mortality among these patients. This can be achieved with trained nursing staff administering back massage in these patients along with medical treatment. Our study has demonstrated a clinically significant improvement in the quality and duration of sleep among patients diagnosed with CCF. Higher percentage (40%) of CCF patients under study were above 65 years of age, which is consistent with the study results of Sharma who reported that 50% of the patients were more than 65 years of age.^[10] Majority (57%) of the patient were females and 43% were males, this finding was similar to Bei-Hung Chang study who reported 52% females and males 48%.^[11] Most (80%) of the patients had left-sided heart failure and the remaining (20%) had

right-sided heart failure; this result was well documented in the study by Mirzaaghazadeh who reported that more than 45% patient had left ventricular failure.^[12] More than half (53%) of the patient had mild congestive cardiac failure; Yaffe *et al.* reported that 78% CCF patients had mild grade of CCF.^[13] In pretest, the overall mean score was 9.50(3.14), which indicates that the CCF patients under study had poor quality of sleep. This finding is consistent with the study findings of Shinde that pretest mean score was 9.07(4.26).^[14] Participants reported that back massage by stroking, kneading, and pressing significantly improved the quality of sleep. The results were consistent with previous research findings in other diseases.^[15]

The main limitation of the study is the small study sample. The study was conducted among patients with different severity of the CCF without categorizing the severity and level of sleep disturbance among them. We have not recorded the effect of back massage on other variables such as anxiety and emotional wellbeing.

Conclusion

The quality of life in CCF patients is affected due to various associated health-related problem such as insomnia, breathlessness, and palpitations. It was evident that that the nursing intervention such as back massage does have an significant impact in enhancing the sleeping pattern, sleep quality, and also improving the vital parameter. The technique of back massage in patients with CCF is safe and cost effective with no side effects. We can conclude that back massage can be routinely implemented as a part of nursing care along with the medical treatment in CCF patients.

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Conflicts of interest

There are no conflicts of interest.

References

1. Dos Santos MA, da Cruz Dde A, Barbosa RL. Factors associated to sleep pattern in heart failure patients. *Rev Esc Enferm USP* 2011;45:1105-12.
2. Vyas UK. Non-pharmacological management of insomnia. *BJMP* 2013;6:a623.
3. Roger VL. Epidemiology of Heart Failure. *Circulation* 2013;113:646-59.
4. Sivadasan Pillai H, Ganapathi S. Heart Failure in South Asia. *Curr Cardiol Rev* 2013;9:102-11.
5. Jiménez JA, Greenberg BH, Mills PJ. Effects of Heart Failure and its Pharmacological Management on Sleep. *Drug Discov Today Dis Models* 2011;8:161-6.
6. Vickers A, Zollman C, Reinish JT. Massage therapies. *Western J Med* 2001;175:202-4.
7. Kong LJ, Zhan HS, Cheng YW, Yuan WA, Chen B, Fang M. Massage Therapy for Neck and Shoulder Pain: A Systematic Review and Meta-Analysis. *Evid Based Complement Alternat Med* 2013;2013:613279.
8. Purves D, Augustine GJ, Fitzpatrick D, *et al.*, editors. *Neuroscience*. 2nd edition. Sunderland (MA): Sinauer Associates; 2001. Chapter 28, Sleep and Wakefulness.
9. Sharma B, McSharry D, Malhotra A. Sleep disordered breathing in patients with heart failure: Pathophysiology and management. *Curr Treat Options Cardiovasc Med* 2011;13:506-16.
10. Sharma B. Sleep in Congestive Heart Failure. *Med Clin North Am* 2010;94:447-64.
11. Chang BH, Jones D, Hendricks A, Boehmer U, Locastro JS, Slawsky M. Relaxation response for Veterans Affairs patients with congestive heart failure: Results from a qualitative study within a clinical trial. *Prev Cardiol* 2004;7:64-70.
12. Mirzaaghazadeh M, Bahtouee M, Mehdiniya F, Maleki N, Tavosi Z. The Relationship between Nocturnal Hypoxemia and Left Ventricular Ejection Fraction in Congestive Heart Failure Patients. *Sleep Disorders* 2014;2014:978358.
13. Yaffe K, Laffan AM, Harrison SL, Redline S, Spira AP, Ensrud KE, *et al.* Sleep disordered breathing, hypoxia, and risk of mild cognitive impairment and dementia in older women. *JAMA* 2011;306:613-9.
14. Shinde MB, Anjum S. Effectiveness of Slow Back Massage on Quality of Sleep among ICU Patient's. *IJSR* 2014;3:292-8.
15. Chen W-L, Liu G-J, Yeh S-H, Chiang M-C, Fu M-Y, Hsieh Y-K. Effect of Back Massage Intervention on Anxiety, Comfort, and Physiologic Responses in Patients with Congestive Heart Failure. *J Altern Complement Med* 2013;19:464-70.

