

The effect of foot massage on dyspnea in heart failure: Case report

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Abstract

Dyspnea is one of the reasons why many heart failure patients present to the emergency department.

A 75 year-old female presented to a cardiologist with prominent dyspnea and orthopnea. Her heart failure was diagnosed by doctors as New York Heart Association (NYHA) Class III. Progressive increase in episodic shortness of breath for the past 3 weeks. The patient had been in her normal state of health until 3 weeks ago that she had difficulty catching her breath while walking. The patient got 7 points from the first Borg Dyspnea Scale.

The study is a case-report study. Personal Data Form (PDF), Borg Clinical Rating for Dyspnea (Borg CR-10) was evaluated by researcher. Classic foot massage was applied to each foot for a total of 30 minutes, up to 15 minutes, once a day for seven days. Dyspnea was measured after the massage following 10 min of resting. Foot massage was applied by the researcher.

Distribution of dyspnea level first and seventh is given in Table 1. Dyspnea level of the patient intervention foot massage decreased to 5.00 from 7.00 at the end of seventh session.

Foot massage which is an easy and safe method may be preferably used as a supportive treatment for elevated dyspnea. However, more studies are needed to examine the effect of foot massage on dyspnea level in heart failure patients.

Keywords: heart failure, dyspnea, foot massage

Introduction

Heart failure (HF) is an important chronic disease that causes high morbidity and mortality in the world [1, 2]. HF negatively affects the daily activities of the patients due to its signs and symptoms [1]. One of the most common symptoms in HF is shortness of breath [3].

Heart failure is the leading heart disease that results in dyspnea [4]. It was found that 23% of the patients who applied to the emergency department because of dyspnea were diagnosed with heart failure [5]. In a meta-analysis study examining the quality of life of heart failure patients, it was reported that the symptom most disturbed by the patients was dyspnea [6]. The vast majority of patients with heart failure cannot breathe comfortably while doing strenuous work, and therefore they fear being out of breath [5, 6]. It has been reported that dyspnea significantly restricts daily life in patients with heart failure [6]. Dyspnea is an important marker in determining the prognosis of HF. [4]. Ordinary care may not be sufficient to alleviate dyspnea caused by heart failure [5]. Therefore, alternative treatment methods can be tried [5, 7]. One of these alternative treatment methods is massage.

It is known that massage improves the quality of life in many diseases such as cancer, cardiovascular diseases and diabetes [8, 9]. The effects of massage, especially on sleep quality in patients with heart failure, have been studied [8].

There is no study evaluating the effect of foot massage on dyspnea in HF [6, 8, 9]. Therefore, it is the first study to examine the effect of foot massage applied to a heart failure patient once a day for 15 minutes for each foot for a total of 30 minutes, on the level of shortness of breath.

Case presentation

A 75 year-old female presented to a cardiologist with prominent dyspnea and orthopnea. She was New York Heart Association (NYHA) Class III. Progressive increase in episodic shortness of breath for the past 3 weeks. The patient had been in her normal state of health until 3 weeks ago that she had difficulty catching her breath while walking. She was becoming short of breath after just 50-70 yards. She had always slept with 1 pillow, but was now requiring 2-3 pillows.

Physical examination vital signs; temperature, 36.1°C; heart rate, 84 beats per minute; respiratory rate, 20 breaths per minute; blood pressure, 148/68 mmHg, oxygen saturation of 90% on room air. The patient's was not

lower extremity edema. The patient got 7 points from the first Borg Dyspnea Scale (7).

Past medical history; moderately controlled hypertension for the past 30 years.

Chest X-ray; cardiomegaly, pruning of peripheral pulmonary vessels and enlarged pulmonary arteries.

Drug history; The patient-reported daily use of hydrochlorothiazide 50 mg, Angiotensin converting enzyme inhibitor 25 mg and atorvastatin 20 mg.

The study is a case report study. Personal Data Form (PDF), Borg Clinical Rating for Dyspnea (Borg CR-10) (7) was evaluated by researcher. Data were collected between October 2019 in Sivas Cumhuriyet University Hospital/Turkey. The data of the patient were collected by the researcher. Personal Data Form (PDF): The form was prepared by the researcher based on the literature and is composed of 5 questions inquiring socio-demographic characteristics of the patient (2,3).

Borg CR-10: Scale developed by Borg consists of verbal descriptors adjacent to specific numbers, the spacing of the numbers and corresponding descriptors essentially providing a category scale with ratio properties. 0- nothing at all, 1- very slight, 2- slight, 3- moderate, 4- somewhat severe, 5- severe, 7- very severe, 9- very, very severe (almost maximal), 10- maximal (7). The Borg Dyspnea Scale is a scale that rates the difficulty in breathing. Breathing is scored from 0 to 10 points, from easy to hardest.

Application

The patient was given foot massage sessions in the hospital bed. The patient was informed about the study at the first interview and, after obtaining his consent, a personal data form and a Borg CR-10 were administered. After collecting the data, the first foot massage application was started. Foot massage sessions started at 11:00 in the morning once a day for seven days, and a classical foot massage was applied to each foot for 15 minutes, for a total of 30 minutes.

Classical massage techniques (effleurage, petrissage, friction, and vibration) were applied for 15 minutes to each foot including the dorsum and the sole of the feet (8)

Dyspnoea was measured after 10 minutes of rest following massage. Based on the researcher's previous experience of massage, it was deemed appropriate to evaluate the borg scales after the patient had rested for 10 minutes. Massage was applied by the researcher.

Data analysis

Data were analyzed by using IBM SPSS 22.0 (IBM Corp. Armonk, NY, USA) statistical package program. The difference between the sessions was analyzed using the Wilcoxon Signed Ranks test. A p level of <0.05 was evaluated as statistically significant.

Result

The influence of the foot massage on dyspnea

Distribution of dyspnea level 1st and 7th is given in Table 1. Dyspnea level of the patient intervention foot massage decreased to 5.00 from 7.00 at the end of 7th session. While the difference in the level of dyspnea was found to be significant, this difference was detected to arise from the difference 7th sessions (p<0.05) (Table 1).

Seans	Dyspnea level	p*
1 st day	7.00 ^a	-
2 th day	7.00 ^{ab}	P>0.05
3 th day	6.00 ^{ab}	P>0.05
4 th day	6.00 ^{ab}	P>0.05
5 th day	6.00 ^{ab}	P>0.05
6 th day	6.00 ^{ab}	P>0.05
7 th day	5.00 ^b	P<0.05

Table 1: Distribution of Level of Dyspnea in After Foot Massage

****Wilcoxon test (the superscripts a, b show in-group differences in each group and measurements with the same letters are similar.)**

Discussion

It can be said that foot massage applied to each foot for 15 minutes and 30 minutes in total once a day for seven days can be effective in reducing the level of shortness of breath. A statistically significant difference was found in the seventh session in reducing the dyspnea level of the applied foot massage.

It is seen that foot massage applied as a nursing approach contributes to the improvement of symptoms in different chronic diseases [8, 9]. In studies investigating the effects of foot massage on vital signs such as blood pressure, pulse and pain, it has been determined that it has positive effects [8, 9, 10].

Patients with heart failure (HF) often experience shortness of breath [2]. Many psychological, physiological and social mechanisms are defined to reveal the cause of dyspnea [11]. Perception of dyspnea is obviously through the central nervous system, where dyspnea-producing stimuli are integrated so at the same time the sensation of dyspnea appears closely related to respiratory muscle function [11, 12]. In a study evaluating the effect of foot massage on vital signs, it was determined that patients' blood pressure, respiratory rate and pulse values decreased [13].

Permana et al. (2021) evaluated the hemodynamic effect of foot massage in intensive care patients. This study found that foot massage has a significant impact on the improvement of the mean arterial pressure, heart rate, respiration rate, and oxygen saturation at the second time measurement after 30 minutes intervention (p<0.05) [14]. Foot massage is known to influence the other organs in the body through affecting all nerve and vessels passing from foot region and thereby lead to effective relaxation [8].

Conclusion

This study is a case-report. For this reason, although the results cannot be generalized; It has been determined that foot massage reduces the level of dyspnea, which is one of the common symptoms in heart failure. Large-scale studies are needed to generalize the results of the study.

Ethical considerations

Academic council and ethics committee approval were obtained from Sivas Cumhuriyet University Medical School (2019-03/39). The patient included in the study was informed about the study and her verbal and written informed consent was obtained.

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Conflict of Interest

There is no conflict of interest in the study

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