EFFECTS OF LIGHT MASSAGE ON BLOOD PRESSURE AND SpO2 IN PATIENTS WITH HEART FAILURE IN RSUD PROF. DR. MARGONO SOEKARDJO PURWOKERTO

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Abstract

Objective: Heart disease is the number one cause of death in the world. The problem that often arises in patients with heart failure is hemodynamic instability. Early detection and recognition of characteristics quickly can help prevent deterioration and maximize the healing process. One of the measures to recognize these characteristics is monitoring blood pressure and SpO2. Rapid blood pressure and SpO2 changes are caused by mobilization and stimulation of the patient's body and require periodic blood pressure and SpO2 monitoring. The aim of this study was to determine the effect of light massage on blood pressure and SpO2 in patients with heart failure.

Method: This study used quasi-experiment pretest-posttest with control group design, in 5 hospital wards Prof. Dr. Margono Soekarjo. Samples were recruited using proportional random sampling technique, consisting of 30 respondents taken according to inclusion criteria, research variables were: giving light massage given 2 times daily for 5 days during treatment. Data were collected using structured questionnaires and observations, and they were analyzed with Paired T-Test and MANOVA.

Results: The results showed that between the treatment and control group on the blood pressure and SpO2 variables is light massage p <0.05, MANOVA hypothesis test result obtained p <0.05.

Conclusion: Light massage have positive effect on blood pressure and SpO2 in patients with heart failure in RSUD Prof. Dr. Margono Soekardjo Purwokerto.

Keywords: blood pressure, heart failure, light massage, and SpO2


INTRODUCTION

Heart disease is the number one cause of death in the world. This disease is not only a problem in developed countries, but also developing countries including Indonesia. Based on research conducted by a health agency in Indonesia, it turns out heart disease is also the number one killer in Indonesia today. Data World Health Organization (WHO) in 2012 showed 17 million people die every year due to heart disease and blood vessels around the world. A total of 83.6 million people in the United States have a heart attack and 478,000 people die from coronary heart disease, even estimated by 2030 that 40.8% of Americans suffer from heart disease [1].

One of the most common heart disorders is heart failure. Heart failure is a major health problem, where the prevalence of heart failure in developing countries is high and increasing. Half of patients diagnosed with heart failure still have a life expectancy of 5 years but about 250,000 patients die by heart failure either directly or...
indirectly each year, the rate has increased 6 times in the last 40 years. The risk of death each year is 5 - 10%, patients with mild symptoms will increase up to 30-40% until the disease continues [7].

Early detection and recognizing features quickly can help prevent deterioration and maximize healing. One of the measures to recognize such traits is regular and rigorous blood pressure and SpO2 monitoring [7].

One of the therapies to help to stabilize blood pressure and SpO2s is by relaxing muscles, one with massage. Massage is a general body skin stimulation, centered on the back and shoulders, or can be done on one or several parts of the body and performed about 10 minutes of each body part to achieve maximum relaxation results (Tamsuri 2006). Massage can also repair problems in the muscle joints, flexing the body, restoring tension and easing pain. Besides, massage can improve blood circulation, and reduce anxiety and depression [5].

Light Massage is the basis of massage therapy and also combines science and art. Determining the exact amount of pressure for each person and finding the area of tension and other soft tissue problems can use a sense of touch. Touch also conveys caring, an important component to healing [10].

METHODS

The research design used in this research is quasi experimental with non equivalent control group design. The population in this study were patients who had heart failure treated in RSUD Prof.dr Margono Soekardjo Purwokerto. The sample size in the study was 30 people, 15 respondents’ treatment group and 15 respondents control group. The sampling technique used in this research is proportional random sampling technique. The inclusion criteria in the study were patients with heart failure who were treated, adult age both men and women, were Muslim, the family approved the informed consent and the patients who experienced blood pressure and SpO2 instability either one or all. The intervention stage of the study is to measure blood pressure and SpO2 status in the intervention group and control group before treatment, giving light massage therapy in the intervention group 15-20 minutes for 3-5 days in the morning and afternoon, and reassess the blood pressure and SpO2 status in the intervention group and control group after intervention for 3-5 days of treatment. Normality test using Kolmogorov-Smirnov test. Recognizing the blood pressure and SpO2 differences in the intervention and control groups using the Paired t-test and using the multivariate test of Manova. Ethical approval has been done in Margono Soekarjo Hospital No : 420/09943a/l/2018.

RESULTS

The mean values of blood pressure and SpO2 mean the light massage group.

Table 1. Distribution of blood pressure and SpO2 variable values (pre and post-test) Treatment and Control on Light Massage.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Treatment</th>
<th>Control</th>
<th>Delta (A)</th>
<th>p value</th>
<th>Delta (A)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Test</td>
<td>Post Test</td>
<td>Delta (A)</td>
<td>p value</td>
<td>Pre Test</td>
<td>Post Test</td>
</tr>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td></td>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>BP Systolic</td>
<td>137.00±29.60</td>
<td>116.93±7.440</td>
<td>20.07</td>
<td>0.013</td>
<td>132.40±29.08</td>
<td>117.67±21.45</td>
</tr>
<tr>
<td>BP Dyastolic</td>
<td>86.73±17.169</td>
<td>77.47±4.688</td>
<td>9.27</td>
<td>0.040</td>
<td>84.00±16.76</td>
<td>72.00±20.07</td>
</tr>
<tr>
<td>SpO2</td>
<td>94.60±9.10</td>
<td>96.20±0.862</td>
<td>1.60</td>
<td>0.000</td>
<td>94.87±0.92</td>
<td>96.13±0.94</td>
</tr>
</tbody>
</table>
Table 1 above indicates that blood pressure and SpO2 variables have improved after light massage treatment. Paired t-test result showed that blood pressure, respiration rate and oxygen saturation got significant value P <0.05, whereas in pulse there was no significant change between pretest and posttest value, P > 0.05.

Table 2. Results of multivariate test light massage analysis in the treatment group and control group of heart failure patients in RSUD Prof. Dr. Margono Soekardjo Purwokerto

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Box Test</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Box M</td>
<td>F</td>
</tr>
<tr>
<td>BP Systolic</td>
<td>15</td>
<td>0.198</td>
<td>1.174</td>
</tr>
<tr>
<td>BP Dyastolic</td>
<td>15</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>SpO2</td>
<td>15</td>
<td></td>
<td>7.76</td>
</tr>
</tbody>
</table>

Table 2 shows that the hypothesis test showed significant numbers for the treatment group and the control group tested by Pillai Trace, Wilk's Lambda, Hotteling's T and Roy's Largest Root procedures were <0.05. Since p-value shows a significant value, this means that the hypothesis test is accepted that simultaneously there is the effect of light massage on blood pressure and SpO2s in patients with heart failure in the treatment group and the control group.

**DISCUSSION**

Light Massage is a part of massage therapy, where massage is the act of suppression by hand on soft tissue, usually tendon or ligament muscle without causing shift or change of joint position aimed at reducing pain, producing relaxation, improving circulation, lowering blood pressure. Massage can improve blood circulation, and lower blood pressure and heart rate [2].

Massage leads to deep relaxation to relieve physical and spiritual fatigue due to the sympathetic nervous system decreased activity which eventually resulted in lower blood pressure (Kaplan, 2006). Massage is a sensory integration technique that affects the activity of the autonomic nervous system. When a person perceives touch as a relaxed stimulus will emerge relaxation response [9].

Hoelscher and Lichstein's research shows that relaxation can lower blood pressure of sistole and diastole in hypertensive patients. The benefits of relaxation include reducing stress-related problems such as hypertension, headache and reduced anxiety levels. Back massage significantly decreased anxiety and increased comfort and decreased systolic blood pressure [4].

The mechanism of massage in patients with heart failure is to manage the physical and psychological problems of heart failure that predict the occurrence of fatigue. Massage can relax some muscle groups that will stimulate the limbic system in the hypothalamus to secrete corticotropin releasing factor (CRF). The substance will stimulate the pituitary to increase the secretion of endorphins and pro opioid melano cortin (POMC) which will increase the production of the encephaline by the adrenal medulla so that it will affect the mood and give the feeling of relaxation. According to Black and Hawks (2009) suggests that any relaxation technique will stimulate the secretion of endorphins in the brain.

This is related to the stress hormones that will increase during anxiety. The findings are supported by the results of research that back massage triggers an increase in endorphins that can suppress anxiety and other psychological problems including depression [4]. Back massage is an intervention that can affect the psychological and psychological aspects of the patient. Improvement of psychological conditions in patients with heart failure leads to
a decrease in fatigue score especially if followed by improvement in physiological parameters. The maximum coping mechanism leads to positive adaptation and can respond to stimuli as well [12].

CONCLUSION

Light Massage improves blood pressure and SpO2 status in patients with heart failure. Therefore, this study may be used as a reference for further research with other nonpharmacologic therapies as complementary therapies to stabilize blood pressure and SpO2s in patients with heart failure.

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REFERENCES


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