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Acupressure Therapy as Alternative Treatment on Cancer-Related Fatigue in Cancer Patients

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ABSTRACT

Cancer progressively affects organ function and causes the neurophysiological changes in skeletal muscle, leading to cancer-related fatigue. The impact of cancer related fatigue affect of physical condition, psychology, social and reduce the quality of life of patients. Acupressure therapy can stimulate the improvement of local microcirculation and increasing physical performance by suppressing molecules that trigger fatigue in the blood. The purpose of this study determine the influence of acupressure therapy on cancer-related fatigue in cancer patients. The design used was a pre-experiment one group pre-test post-test design approach. The populations were cancer patients living at the Indonesian Cancer Foundation East Java Branch. Samples were 30 cancer patients taken by purposive technique based on inclusion criteria. The instrument was the Brief Fatigue Inventory which has been tested for validity and reliability. Acuressure therapy is given to acupoint C6, GB20, P6, Li4, Li11, Sp 6, St 36, 2 times per week for 4 weeks. Statistics was verified with Wilcoxon Sign Rank Test $p < 0.05$. Result showed the effect of acupressure therapy on cancer related fatigue $p = 0.000$. Accupressure therapy can activate acupoint points on the meridians, stimulating myelin nerves in the muscles and impulses into the central nervous system and can facilitate the reduction of complaints of fatigue or other symptoms of pain in parts of the body.

Keywords: Acupoint, acupressure therapy, cancer related fatigue

INTRODUCTION

Cancer progressively affect several organ functions and causes the neurophysiological changes in skeletal muscle, abnormal production of certain substances such as cytokines, inhibit metabolism in normal muscle function and can cause cancer-related fatigue (CRF) (Ryan, et al., 2007). Fatigue is a very subjective multidimensional experience involves physical fatigue, decreased need for activity, decreased motivation and mental fatigue (Ahlberg, Ekman, Gaston-Johansson, & Mock, 2003). CRF can progressively disrupt the fulfillment of the patient's basic daily needs and affect the level of patient dependence on caregiver. Severe fatigue is experienced by 50% of cancer patients and they had a caregiver dependency level of 86.6% with the majority was the severe dependence. (Werdani, 2018). Based on the results of the preliminary survey in 2017 at Indonesian Cancer Foundation East Java Branch, cancer patients with CRF only received pharmacological treatment from the hospital and they only reduced their activities when they felt fatigue (Werdani, 2018).

The prevalence of cancer in Indonesia reaches 4.9 per mile, with the largest number being women, which is 2.9 per mile and the majority is in urban areas, namely 2.06 percent. The most cancer

management is surgery reached 61.8%, chemotherapy 24.9%, radiation 17.3% and other therapies 24.1% (Badan Penelitian dan Pengembangan Kesehatan, 2018).

Cancer and cancer treatment causes defects in the mechanism for regenerating Adenotriphospat (ATP) in skeletal muscle, thereby reducing the ability to perform mechanical activity (Ryan, et al., 2007). Cancer treatment causes an increasing serotonin hormone, it can decrease in somatomotor drive, modification of the function of the hypothalamic-pituitary-adrenal axis (HPA), and decreased sensation of capacity to do physical work. Fatigue is often major complaints in patients were diagnosed with cancer. The significant fatigue occurred in breast cancer patients in the amount of 40%, 33% in colorectal cancer patients and patients with prostate cancer 17% (Jones, et al., 2016).

One of the palliative treatment that can be given to cancer patients with CRF is acupressure therapy. It is a technique physical suppression at the point of acupoints using hands, elbows, or a device, to stimulate sensory nerve cells and the hypothalamus function (Zick, et al., 2012). Acupressure therapy in various types of cancer can reduce persistent cancer-related fatigue (PCRF) (Zick, et al., 2012). Acupressure treatment reduced 34% in CRF complaints in cancer patients (Lovejoy, 2016). This study examined the effect of acupressure therapy on cancer-related fatigue in cancer patients. The purpose of this study determine the influence of acupressure therapy on cancer-related fatigue in cancer patients.

MATERIALS AND METHODS

This study used pre experimental design with one group pre-test post-test design. The sample were cancer patients at Indonesian Cancer Foundation East Java Branch which amounted to 30 people, taken by purposive sampling technique. This study used the Brief Fatigue Inventory (BFI) that has been tested for validity and reliability with the R value 0.657 – 0.897 and Cronbach alpha result being 0.867. It means that the instrument was valid and reliable for measuring cancer-related fatigue. This study has been carried out the ethical tests and stated ethical conduct. Explanation of the research procedure, purposes, advantages and risk, informed to participants and signing the informed consent who agreed as participants. All participants fullfilled the BFI questionnaire as a pre test, continued by treatment of acupressure therapy 2x a week with acupoint pressure in C6, GB20, P6, Li4, Li11, Sp 6, St 36, it conducted for 4 weeks. Accupressure therapy was carried out by certified therapist who had experience implementing acupressure. After the treatment period is completed, post test is done by giving more BFI questionnaire. After the data collected, the researcher performs coding, scoring and tabulation. Analyzed used the Wilcoxon Signed Rank Test with $p < 0.05$.

RESULTS

Table 1. General data of Participants at the Indonesian Cancer Foundation East Java Branch, June 2018

General Data	Categories	Frequency (persons)	Percentage (%)
Aged	36 – 45 years	4	13.4
	46 – 55 years	13	43.3
	56 – 65 years	13	43.3
Sex	Female	23	76.7
	Male	7	23.3
Time of diagnosed with cancer	< 1 years	3	10
	1-3 years	16	53.3
	4 – 6 years	5	16.7
	>6 years	6	20
Cancer Stage	I	1	3.3
	II	10	33.3
	III	17	56.7
	IV	2	6.7
Cancer Types	Breast Cancer	12	40
	Nasopharynx Cancer	6	20
	Servical Cancer	10	33.4
	Thyroid Cancer	1	3.3
	Colon Cancer	1	3.3
Undergoing Therapy	Surgery + Chemotherapy	6	20
	Chemoradiotherapy	14	46.7
	Surgery + Chemoradiotherapy	10	33.3

The majority of participants (43.3%) aged 46 - 55 years and 56 – 65 years, and dominated by female (76.7%). Most of the participants (53.3%) had cancer for 1 - 3 years with the highest stage (56.7%) was stage III. The majority of participants (40%) were breast cancer and chemoradiotherapy was the most undergoing theraphy (46.7%).

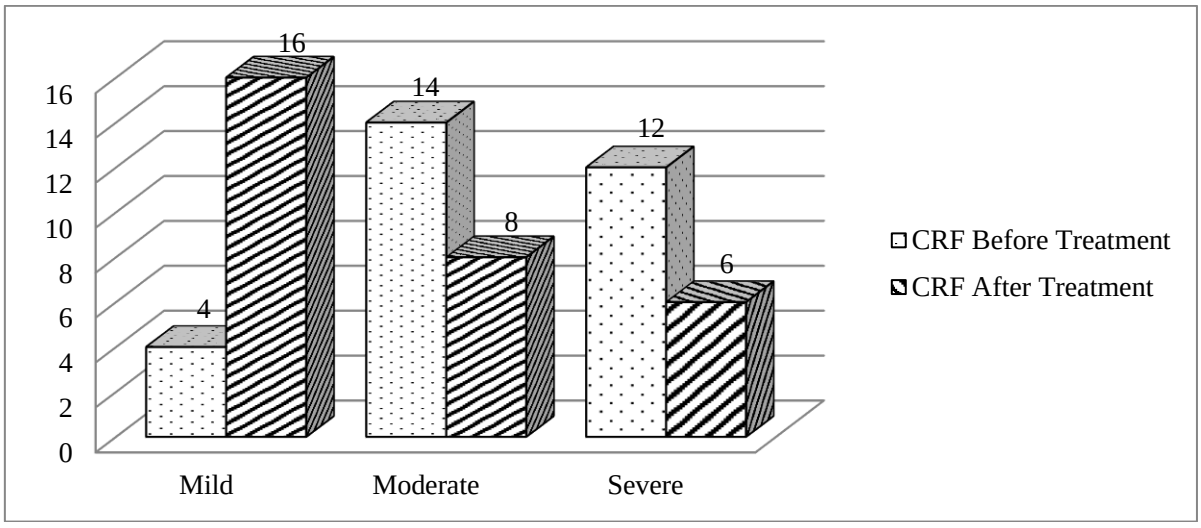

Figure 1. Cancer-Related Fatigue Before and After Acupressure Therapy at the Indonesian Cancer Foundation East Java Branch, June 2018.

Prior to treatment, the majority of participants (47%) had moderate level of CRF, 12 people (40%) had severe CRF, and only 4 people (13%) had mild CRF. However, after the treatment of acupressure therapy for 4 weeks, there was a change of condition, the majority of CRF had at mild level (53%), 8 people (27%) had moderate CRF and only 6 people (20%) had severe CRF.

Table 2. Descriptive statistic of acupressure therapy, The Indonesian Cancer Foundation East Java Branch, June 2018

		N	Mean Rank	Sum of Ranks
CRFPost – CRFPre	Negative Ranks	0[a]	.00	.00
	Positive Ranks	18[b]	9.50	171.00
	Ties	12[c]		
	Total	30		

The majority of CRF levels got better from moderate level to mild level and from severe level to moderate level, the total of it were 18 people (60%). As many as 12 people (40%) in remained condition.

Table 3. The Wilcoxon Sign Ranks Test of acupressure therapy, The Indonesian Cancer Foundation East Java Branch, June 2018

	CRFPost – CRFPre
Z	-4.243[a]
Asymp. Sig. (2-tailed)	.000

The significancy of statistic test was 0.000 ($p < 0.05$), it means that acupressure therapy had positive effect to reduce CRF in cancer patients.

DISCUSSION

1. Cancer Related Fatigue Before Acupressure Therapy

In this study found that 47% participants had a moderate level of CRF, 40% had severe levels of CRF and minority of participants 13% had mild CRF. In this condition the participants complained that fatigue was experienced every day and could interfere their daily activities, eventhough made participants become bad mood throughout the day and causes the participant's communication disturbed with others. The participants also felt the feeling of exhaustion, it caused they are unable to enjoy their lives.

The moderate and severe levels of CRF found in the study can be related to the stage of cancer stage, of which 56.7% had in stage III and 6.7% had in stage IV. Stage III of cancer has characteristics of that cancer cells that have spread to the tissue around these cancer cells, whereas stage IV of cancer is a cancer cell that has metastatic to other parts of the body outside the cancer cell (French National Cancer Institute, 2010). Medical treatments to prevent the cancer cell metastatic are chemotherapy, radiation, surgery, chemoradiotherapy (Mokhtari, et al., 2017). In this study all participants were given chemoradiotherapy (46.7%). Radiotherapy and chemotherapy can trigger oxidative stress which not only attacks the target tissue, but also on healthy tissue, it causes toxicity and dysfunction of all organs (Gilliam & St. Clair, 2011). 449 cancer patients reported fatigue as the most common side effect, followed by diarrhea and constipation (Pearce, et al., 2017). Another research also stated that of 100 cancer patients 95% experienced weakness and fatigue 90% (Aslam, et al., 2014). Severe fatigue is more common in chemotherapy (98.3%), and concurrent radiation chemotherapy (78.57%) compared

to radiotherapy which tends to cause moderate fatigue (45%) (Karthikeyan, Jumnani, Prabhu, Manoor, & Supe, 2012).

2. Cancer Related Fatigue After Acupressure Therapy

Based on the results of this study, it was found that there was a change condition that the majority of CRF was at a mild level (53.3%), moderate level decreased to 26.7% even at the severe level there were only 20%. Acupressure therapy can improve the level of fatigue and affecting the working system of the brain by pressing on the hand/thumb at certain acupoints to balance physiological energy flow (Tournaire & Theau-Yonneau, 2007). In this study the acupoints points used were points C6, Li4, Li11, Sp 6, St 36, GB 20 and P6. These points are useful for reducing fatigue and increasing body energy (Mehta, Dhapte, Kadam, & Dhapte, 2017). Acupressure on P3 acupoint given to chemotherapy patients can improve the patient's CRF condition (Hou, Zhou, Wu, Yu, & Hu, 2017). Comparasion between acupressure relaxation therapy, high-dose acupressure stimulation, and low-dose acupressure stimulation for 12 weeks showed that a significant decrease in fatigue in all treatment groups with a greater reduction occurring in the acupressure relaxation group (Zick, et al., 2011). 288 breast cancer patients given relaxation acupressure cause 66.2% decreased fatigue (Zick, et al., 2016). Giving acupressure for 4 weeks in hemodialysis patients showed an improvement in the level of patient fatigue (Sabouhi, Kalani, Valiani, Mortazavi, & Bemanian, 2013). Applied acupressure for breast cancer patients, the results of the severity of fatigue and depression improved (Zick, et al., 2012).

3. Effect of Acupressure Therapy on Cancer Related Fatigue

In this study the results showed that the majority of participants (60%) experienced a positive change in CRF, a decrease in CRF levels in a better direction, 40% did not experience changes or were at the same level of CRF both before and after intervention. In the statistical test with the Wilcoxon Signed Rank Test, $p = 0.000$ it means that there is an influence of acupressure therapy on cancer related fatigue. It caused by active manipulation at acupoints that are carried out routinely and continuously. The emphasis on acupressure points must be positioned along the meridian line. Meridian is a channel in the human body that maintain Qi. Each meridian is connected to various organs and tissues of the human body. Activation of certain points on the meridian can facilitate the reduction of complaints, symptoms or pain from other parts of the body (Andrews & Dempsey, 2007). Based on the location of stimulation, pressure activates small myelin nerves in the muscle and passes stimulation of impulses to the central nervous system including the spinal cord, midbrain, hypothalamus and pituitary axis (Ezzo, Streitberger, & Schneider, 2006). Acupressure in ST 36 and Li12 acupoints in 120 acute lymphoblastic leukemia patients after chemotherapy, caused a decrease in fatigue 1 hour after intervention (Bastani, Khosravi, Borimnejad, & Arbabi, 2015). Acupressure mediates nitric oxide (NO) signals, to improve local microcirculation through cyclic guanosine monophosphate (cGMP). It helps in increasing physical performance by pressing molecules that trigger fatigue in the blood (Jou & Ma, 2009). Acupressure in patients with hepatocellular carcinoma, the results showed that fatigue in the acupressure group were lower than in the control group (Lan, Lin, Chen, Lin, & Wang, 2015). Acupressure which is self-managed for 6 weeks causes a significant reduction in depression and fatigue in patients with breast cancer (Mehling, et al., 2012). Performed GB 20 Fengchi acupoint stimulation could improve stiff neck, headache, dizziness, and fatigue (Ma, Chang, & Lin, 2007).

CONCLUSION

Based on the results of this study, it can be concluded that cancer patients can experience CRF with various levels ranging from mild to severe, but by providing acupressure therapy as a an alternative treatment routinely and continuously can have a significant effect on the decrease in CRF to the lower level.

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