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Exercise Program on the Quality of Life in Cancer Patients

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Abstract

World Health Organization has estimated that there are an increase number of cases deaths from cancer in the near future. Cancer has become one of the most discussed. In this study, we focus on the quality of life of the cancer patients, by using exercise program and to observe the difference between pre-test and post-test results with exercise program. This study was to examine the alternative therapies using of exercise program to enhance and quality of life, using the Thai Hospice Quality of Life Index (T-HQOLI), in cancer patients. The 11 cancer patients were divided into two different groups; the control (non-exercise) group followed their routine schedules; the exercise group participated in exercise program under supervision of a professional trainer. The results from both questionnaires, collected during 4th, 8th and 12th week, showed that exercise group was most significantly improved compared to the other two groups. This suggested that the combination of exercise activities has the most potential to increase the quality of life for the cancer patients. It can be concluded that exercise program is a good model to improve both psychological and physiological conditions. The treatment can also be used in general clinics or hospitals as an alternative treatment for cancer patients.

Keywords: Exercise, Quality of life, Cancer patient

1. Introduction

Cancer is a term that encompasses a complex group of more than 100 different types of cancerous diseases. It can affect just about every organ in the human body. As the organs in our body are made up of cells, cells divide and multiply as the body needs them. When these cells continue multiplying when the body doesn't need them, the result is a mass or growth, also called a tumor. Benign is considered non-cancerous and malignant is cancerous. Benign tumors rarely are life threatening and do not spread to other parts of the body. They can often be removed. Malignant tumors, however, often invade nearby tissue and organs, spreading the disease (Kinzler & Vogelstein 2002).

The population of long-term cancer survivors continues to grow. In 2002, 24.6 million people were living with cancer, worldwide (WHO 2005). Improvements in treatments are, in part, responsible for the increased survival rates and life expectancies for cancer survivors. However, these treatments can be harmful, with many cancer survivors experiencing long-term negative physical and/or psychological effects from their disease or treatment. For this reason cancer is increasingly being viewed as a chronic illness requiring long term management and the need for evidence-based rehabilitation interventions for this population to grow (Pinto & Trunzo 2005).

In Thailand, the trend of cancer is increasing in line with other countries around the world. According to statistics for 2007 from the Bureau of Policy and Strategies, Ministry of Health found that the mortality rate of patients with cancer is growing every year and the number one cause of death in Thailand since 2003. The National Cancer Institute in 2008 also estimates that Thailand will have 120,000 new cancer patients and will increase by another 50 percent in the next 10 years (National Cancer Institute 2008). Cancer is ranked among the top three causes of death in Thailand, with an estimated age adjusted incidence rate of 150.4 per 100,000 for males and 123.0 for females (Ministry of Public Health 1996).

Physical exercise is important for maintaining physical fitness and can contribute positively in maintaining a healthy weight, building bone density, muscle strength, joint mobility, promoting physiological well-being, reducing surgical risks, and strengthening the immune system (Cohen & Williamson 1991). Exercise is increasingly becoming recognized as an important treatment for the recovery and rehabilitation of cancer survivors. The findings from previous reviews and meta-analyses suggest that exercise alleviates a range of physical and psychological complaints after cancer treatment. The benefits are thought to include reductions in fatigue and improvements in immune function, physical functioning, body composition, and quality of life (Galvao & Newton 2005; Kirshbaum 2007).

Quality of life (QOL) is used in multidimensional, intricate concept that synthesizes the unique physical, functional, spiritual, psychological, and social well-being of each individual (George & Clipp 2000; Mast 1995; Smith 1996). The aim of this study is thus to examine the use exercise programs to enhance the quality of life in cancer patients at Arokhayasala Foundation, Thailand.

2. Material and Methods

Participants (n = 11) were classified as stage 3 to 4 (terminal stage) of cancer patients who received hospice care. They were treated at the Arokhayasala Foundation, Sakonnakhon Province in Thailand. These patients were randomly assigned into 2 groups, control (non-exercise) group (n = 6) and exercise group (n = 5). The patients were treated with drug chemotherapy, radiation therapy or surgery before being treated at the Arokhayasala Foundation, Thailand. Upon admitted into the hospice program at Arokhayasala Foundation, all participants were evaluated by the nurses and medical doctors for this study qualification. They were assigned to one of the two study groups. The human right of participant protection of this study has been approved by Burapha University Ethics Committee, Thailand. Exercise program used in the study were Tai Chi Chuan Program for 30 minutes 5 days per week lead by a professional trainer.

3. Statistical analyses

All of the collected data, including the results from questionnaires, were analyzed using the Software Package of Social Statistic/Personal Computer (SPSS / PC). Non-parametric scale was calculated with Kruskal Wallis Test and Friedman Test. The Mann-Whitney U test was also used when statistical analysis was significantly found. The statistical significance of this study was set at *p* value less than .05.

4. Results

4.1 Characteristics of cancer patients

The mean age of participants was 52.76 (range 40-72 years of age). The majority of study patients were classified as stage 3 (77.7%) with the rest at stage 4 (22.3%). Most of the patients were married (n = 9, 81.8%) and 5 out of them were primary school educated (45.5%). Their main occupations were farmer (n = 6, 64.5%). (See Table 1)

4.2 Comparison between levels of quality of life

4.2.1 Between Group Comparisons

The Kruskal Wallis test analyses to compare between control (non-exercise) and exercise groups were not significantly different each week are shown in table 2. During this experimental week (12th) the control (non-exercise) group (Mean = 7.80 ± 0.50) was statistically significant different from the exercise group (Mean = 8.67 ± 0.61).

4.2.2 Within Group Comparison

The mean differences of quality of life of control (non-exercise) and exercise groups, using Friedman test, between week 4th, 8th and 12th after treatment shows significant differences when compared with pre-test (*p*

= 0.000 - 0.004). Being at Arokhayasala Foundation made cancer patients a better quality of life. All cancer patients' quality of life had been better since they were there. (See table 2)

5. Discussion

The change of quality of life found in current study would reflect and document the efficiency of the traditional medication and well-being of the cancer patients. The cancer patients had a better quality of life after involving in our exercise program provided, using Tai Chi Chuan Program, after 12th week. The exercise program was not too complicated for cancer patients at stage 3 and 4. The Tai Chi Chuan program has been able to improve the self-esteem and quality of life also in breast cancer survivors (Mustian *et al.* 2004). By practicing Tai Chi Chuan program, breast cancer survivors increased their functional capacity significantly more than the control (non-exercise) group that did not participate (Mustian *et al.* 2006). Exercise is gradually becoming recognized as an important treatment for the recovery and rehabilitation of cancer survivors. The findings from previous reviews and meta-analyses suggest that exercise reduced a range of physical and psychological complaints after cancer treatment. Physical exercise after cancer diagnosis consistently has been also found a positive effect on quality of life including physical, functional, psychological, and emotional well-being (Schwartz *et al.* 2001). Higher means on quality of life of cancer patients in week 12 indicates that improving these cancer patients with exercise is better typical treatment provided by Arokhayasala Foundation. This study indicates that every treatment provided show positive improvement across time, including typical treatment of Arokhayasala Foundation. Being at Arokhayasala Foundation has its own positive effects to their cancer patients.

6. Conclusion

This study aimed to determine the effectiveness of exercise program on quality of life in cancer patients. The physical activity program was simple and effective to undertaken by the cancer patients. The quality of life of cancer patients is better starting from week 12 after explosion exercise program. The Arokhayasala Foundation typical treatment by providing participation activity, cooking, and gardening, praying and listening to the monk with herbal medication shows more effectiveness on quality of life.

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Table 1. The characteristics of cancer patients (N = 11)

Characteristics	Study Groups			
	Control		Exercise	
	(N)	(%)	(N)	(%)
Status				
Single	-	-	1	20.0
Married	6	100	3	60.0
Divorce	-	-	1	20.0
Education				
Primary School	2	33.3	3	60.0
High School	4	66.7	1	20.0
Other	-	-	1	20.0
Occupation				
Merchandise	2	33.3	1	20.0
Business Owner	1	16.7	1	20.0
Farmer	3	50.0	3	60.0
Cancer Stage				
Stage Three	4	66.7	3	60.0
Stage Four	2	33.3	2	40.0

Table 2. Means and SD of QOL between Pre-test, 4th, 8th and 12th weeks

QOL	Pre-test	Week 4	Week 8	Week 12	χ^2
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	<i>p</i> -value ^A
Control	4.67 (0.51)	6.04 (1.18)*	7.23 (0.86)*	7.80 (0.50)* ^a	17.75 .000*
Exercise	4.92 (0.48)	7.47 (1.12)*	7.95 (0.82)*	8.67 (0.61)* ^b	13.56 .004*
χ^2	1.34	1.24	1.40	2.04	
<i>p</i> -value ^B	.146	.104	.218	.022*	

* = *p* value < .05 (Ranging from .027 to .048) (between pre- and post-test using Mann-Whitney U test)

p values ^A from Friedman test

p value ^B from Kruskal Wallis test (a, b Results with the same letter are not statistically different (between groups))

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