



EFFECT OF HOME –BASED EXERCISE ON LYMPHEDEMA AMONG POST-MASTECTOMY PATIENTS: AN INTEGRATIVE REVIEW

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Abstract

Cancer is a major public health problem worldwide. Breast cancer considered to be the most common cancer among females in the world and in Jordan as well. The first choice to treat breast cancer is surgery. Lymphedema is considered the most common complication may face females after mastectomy. There were different modalities to manage lymphedema. Therefore the purpose of this study was to review studies that address the effect of home based exercise on lymphedema among post mastectomy Jordanian females. A literature search was started using computerized databases of Google scholar, CINAHL, MEDLINE, and PubMed. The key words used to find the related articles were: Lymphedema, exercise, post-mastectomy and physical activity. The results of this studies give a clear evidence about the effectiveness of the home based exercise on lymphedema reduction, which may increase attention of health care providers to the importance of the home based exercise and to consider it as one of lymphedema treatment modalities.

Keywords: Exercise, Physical Activities, Lymphedema, Post Mastectomy.

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Introduction

Cancer is a major public health problem worldwide and the second leading cause of death globally (WHO, 2017). In 2015 cancer was responsible for 8.8 million deaths in the world (WHO, 2017). Among all cancer types, breast cancer considered to be the most common cancer among females in the world where nearly 1.7 million cases diagnosed in 2012 (Torre, Bray, Siegel, Ferlay, Lortel- Tieulent & Jemal, 2015).

Breast cancer could be treated in different treatment regimens depending on the stage of breast cancer such as chemotherapy, radiotherapy, surgery, hormonal therapy, and targeted therapy (American Cancer Society, 2018). Among these types of treatment, surgery is considered the first choice to treat breast cancer, with the goal to remove the tumor and may involve the resection some of the lymph nodes under the arm (Bonisson et al., 2017). Most surgeries have some possible complications such as wound infection, hematoma, seroma, lymphedema, and phantom breast pain (Rocco et al., 2013).

Lymphedema is considered the most common complication may face females after mastectomy (Zou et al., 2018). Lymphedema is characterized by an accumulation of protein-rich tissue fluid in interstitial spaces that lead to develop edema, chronic inflammation with pain, and tightness and heaviness being felt in the affected arm (Chan, Lui & So, 2010; Finnane, Anna, -8+ 55Janda & Hayes, 2015). Lymphedema affects 15-28 % of breast cancer survivors post mastectomy (Oncology Nursing society, 2017). Lymphedema can cause physical discomfort, psychological distress, cosmetic defects, and functional disability in the affected arm (Alande et al., 2017). Also lymphedema is associated with feelings of discomfort and heaviness, functional limitation, and an elevated risk of recurrent infection (Li et al., 2016). Lymphedema management still form a major concern for patients and health care providers (Fu, 2014). There were different modalities to manage lymphedema include intermittent pneumatic compression pump, low- level laser therapy, weight reduction, exercise, acupuncture, surgery, and other (Li et al.,2016).

Exercise is defined as “physical activity that causes an increase in energy expenditure, and which involves a planned or structured movement of the body that is performed in a systematic manner in terms of frequency, intensity, and duration and is designed to maintain or enhance health-related outcomes” (American College of Sports Medicine, 2005; Mishra, 2012).

Exercise has many benefits, it helps in improving circulation, lowering blood pressure, maintaining healthy body weight through reducing body fat, strengthening muscles and bones, improving memory, improving quality of life, and decreasing stress (Vina, Sanchis-Gomar, Martinez- Bello & Gomez- Cabrera, 2012). It has been proven that the effectiveness of aerobic exercise on preventing the onset of diabetes induced peripheral neuropathy (DPN), as well as modifying the natural history of DPN (Balducci et al, 2006). Furthermore, exercise could reduce fatigue among females with gynecologic cancers (Al Maqbali et al, 2019). Few research articles have been studied the effect of home based exercise on lymphedema among post mastectomy. Therefore this review aimed to investigate the effectiveness of home based exercise on lymphedema among postmastectomy patients.

Methodology

A comprehensive search was conducted to look for articles related to the main topic “Effect of Home – Based Exercise on Lymphedema among Post Mastectomy Patients”. A literature search was started using computerized databases of Google scholar, CINAHL, MEDLINE, and PubMed.

The key words used to find the related articles were: Lymphedema, exercise, post-mastectomy and physical activity. The term “lymphedema” was used in combination with other terms such induced by mastectomy.

Computerized articles from Google, CINAHL, MEDLINE, and PubMed contained 22, 20, 13, and 11 research articles, respectively. The search process yielded many articles but not all of them relevant to the phenomenon of interest, so that after excluding the duplicated and irrelevant articles the total numbers of the articles were reduced to 8 according to specific inclusion criteria.

Inclusion criteria for this integrative literature review were the following: (1) The articles were written in English language. (2) They were published between 2011 and 2020. (3) All articles in full text. (4) They were contained information about effect of exercise on lymphedema in post mastectomy patients. Based on this inclusion criteria, these eight articles

were formed the basis for this integrative review.

The majority of articles were published in different medical and exercise sciences journals, all articles were focus on the effect of exercise on lymphedema induced by mastectomy. These eight articles were four randomized control trials and four systematic reviews.

The sample size for the relevant articles ranged from 23- 951 women with lymphedema induced by mastectomy, different types of exercises included in these articles such as; resistance, aerobic, gravity resistive isotonic, Pilates exercises, stretching, water exercise and others.

Findings

One controlled clinical trial conducted in 2015 has studied and compared effect of water – based exercise, land – based exercise and standard care among 88 women cancer survivors with lymphedema. After dividing them to 35 women as water exercise group, 29 women as land exercise group, and 24 women as stander care group. They found that lymphedema volume decreased among those women within water – based exercise group compared with lymphedema volume among women in the other groups (Lindquist, Enblom, Dunberger, Nyberg & Bergmark, 2015).

In the same year, a systematic review included 9 articles with a total of 957 breast cancer survivor with lymphedema, which conducted to determine the effects of resistance exercise on lymphedema. In all these included articles, resistance exercise intensity was described as moderate – high. They reported that resistance exercise had a little effect on lymphedema among all these articles (Keilani, Hasenoehrl, Neubauer & Crevenna, 2015).

Another systematic review of 11 randomized controlled trials that included 458 women with breast cancer who developed lymphedema, with aim to assess the effects of different types of exercise (aqua lymph training, swimming, resistance, yoga, aerobic, and gravity- resistance exercise). These articles measured the effect of exercise on lymphedema based on arm volume and significant subjective improvements. Furthermore they found that exercise in its different types could improve subjective parameters such as (decrease pain severity, arm disability, and degree of sensation) and objective parameters such as (decrease swelling and reduce lymphedema based on reduction of arm volume), in patients with lymphedema (Baumann et al., 2018).

Conclusion

The results of this studies give a clear evidence about the effectiveness of the home based exercise on lymphedema reduction, which may increase attention of health care providers to the importance of the home based exercise and to consider it as one of lymphedema treatment modalities. Also the results of this study will participate in decreasing readmission to the hospitals. As well as, it may be helpful in knowledge expansion related to exercise benefits among the patients with lymphedema. But also health care providers may make it one of the effective methods in the health practice to prevent and manage lymphedema. In addition, it may decrease burden of lymphedema management, and encourage conducting further researches in the future to form clear evidence to practice.

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