

COMPLEMENTARY AND ALTERNATIVE THERAPY TO REDUCE FATIGUE AMONG ONCOLOGY PATIENT UNDER CHEMOTHERAPY: A NURSING PERSPECTIVE

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ABSTRACT

Introduction: The incidence of cancer is rapidly increasing among the world. Cancer mostly demand cytotoxic regimen that caused adverse events. Fatigue is the most symptom that complained by oncology patients. Nurse has obligation to relieve patient's symptom and promote well being during the therapeutic procedure. The aim of this study was to analyse the effect of complementary and alternative therapy to reduce fatigue based on nursing perspective. **Method:** Design of the study was literature review. Online searching method involved four databases including Pubmed, Scindirect, SAGE, and Pubmed. The inclusion criteria of studies were published in free fulltext between 2012 and 2018, clinical experimental studies at least quasi experiment or RCT. The exclusion criteria were adult population who did not receive chemotherapy. **Results:** The results found eight studies matched the criteria. There were two studies applied massage as body manipulation and exercise-energy based intervention such as acupressure, yoga, qigong, and taichi. **Conclusion:** Those intervention were relevant with nursing body of knowledge, well explained in the North American Nursing Diagnosis Association, Nursing Outcomes Classification, Nursing Interventions Classification (NANDA, NOC, and NIC) as standardized nursing language.

Keywords : cancer, complementary, alternative therapy, nursing intervention, fatigue

INTRODUCTION

Currently, cancer as chronic disease become global burden. Based on Global Cancer Statistic, GLOBOCAN estimates 18.1 million new cancer cases and 9.6 million cancer deaths in 2018 (Bray et al., 2018). Survey involved 185 countries conclude lung cancer is the most often diagnosed and caused death followed by female breast cancer (11.6%), prostate cancer (7.1%), and colorectal cancer (6.1%). Based on the world region distribution in 2018, Asia accounted almost 60% of global cancer compared with Europe 23,4% and America 14,4% (Sung et al., 2021). The rising incidence among the world impact a new insight related to curative and long term care approach.

The treatment that provided mostly aims to relieve symptom due the causative medication not yet well defined. This fact related to patient preference in choosing non conventional regimens known as complementary and alternative therapy. The used of complementary and alternative therapy increased before and after a cancer diagnosed (Adams & Jewell, 2007). The study in Ontario involved 4064 patients found the biological products such as green tea, curcumin, ginger, probiotics and medication canabidiol are widely used since diagnosis (Buckner et al., 2018). While the body based manipulation such as chiropractic, massage, acupuncture, and reiki preferred used before diagnosis. The

spiritual therapy also popular since past such as prayer, meditation, qi gong, yoga, taichi and reiki. The benefit of complementary and alternative therapy are beneficial to treat patients' symptom. Positive finding promote psychosocial wellbeing among oncology patient. The symptom is getting worse during the chemotherapy due the adverse event. Survey in Fukoka Hospital among 49 patient under four weeks cytotoxic regimen describe the adverse event manifest in physical and non physical complain such anxiety, fever, fatigue, alopecia, and nausea (Sasaki et al., 2017). Fatigue mostly manifested as a complex symptom among cancer patient. It also affect patient family and partner (Traa et al., 2016).

Nurse as health care professional should solve this issue. Nurse has obligation to relieve patient symptom and promote wellbeing. Complementary and alternative therapy could be an option that brought benefit. Nurse should expand their knowledge and make sure the therapy will be beneficial. Research in Fukoka found that complementary and alternative therapy improve psychosocial wellbeing by self positive reframing and acceptance (Sasaki et al., 2017). Variance of complementary and alternative therapy including nutrition, relaxation, physical exercise also part of energy management to improve energi level among fatigue patient.

METHOD

The design of this study is an integrated literature review with the stages of literature study procedure including the formulation of study questions, the definition of inclusion and exclusion criteria, library search strategies, study selection, data extraction, assessment of evidence quality and synthesis (Russell, 2005). Clinical questions were formulated using PICO method. The keywords consisted of 'cancer' AND 'complementary therapy' AND

'alternative therapy' AND 'nursing intervention' AND fatigue. The inclusion criteria were articles published between 2012 and 2018, written in English, free full text, original research with experimental research designs. The article were excluded if it does not fit the study outcome, involved a population of non adult cancer patients receiving chemotherapy, review studies. Search was performed on four data bases, namely: SAGE, Pubmed, Science Direct, and Proquest. Data extraction was done online simultaneously by four reviewers and will be displayed in the results table.

Further assessment of the quality of evidence in this study used Olsen-Baisch Scoring for integrated review consisting of four criteria, namely study design, samples, research methods, and reporting of analysis results (Olsen & Baisch, 2014). Explanaiton related quality scoring for critical appraisal describe on table 1. Score for study type : 3= qualitative design; 4 descriptive quantitave design; 5 mixed qualitative and quantitative descriptive; 6= quantitative experimental & quasi-experimental. Score for sampling method : 0= not explained; 1=convinience; 2=purposive or case matching ; 3=random or total sampling. Score for method details : 0= not explained; 1 method and tools. Score for analysis : 1=narrative; 2=descriptive statistic ; 3= inferential statistic Study quality analysis was carried out by two reviewers, if there was a discrepancy between them , it would be validated by one other reviewer. Synthesis of study results were discussed based on the suitability of complementary therapeutic interventions in overcoming the problem of fatigue among cancer patients.

RESULT

Fatigue in the NANDA was positioned in the Domain 4, namely activity and rest, third class namely

balance energy. "Fatigue is an extraordinary feeling of fatigue and a decrease in physical and mental work capacity to the usual level that is continuous"(NANDA International, 2020). As the sign of physical and mental fatigue mentioned drowsiness, feeling guilty, anxiety, depression, sleep deprivation, lethargy and increase demand to rest. Related to cancer it fits the criteria regarding malnutrition, anemia, and chronic illness. This clinical judgement supported by the finding that anemia could be induced by chemotherapy. Xu et al (2016) involved 4,426 patients who received chemotherapy and the incidence of anemia grade 1 reached 58%; grade 2 was, 34%, 8% on grade 3, and <1% grade 4. The etiology in that study was multifactorial. It may be caused by the underlying condition of cancer itself, nutritional status and bone marrow function or the "high-risk" regimens (eg, Carbo-Tax).

Based on this study finding involved two evidences of lung cancers (Tang et al., 2014a; Zhang et al., 2016b), two evidences of breast cancer (Lötzke et al., 2016; Taso et al., 2014), the others are blood cancer (Miladinia et al., 2017), colorectal cancer (Uysal et al., 2017), and hepatocancer (Lan et al., 2015). In this study definition of fatigue were determined by many tools. All the evidences assessed by quantitative questionnaire including Fatigue Rating Scale with 37 items; Brief Fatigue Inventory (BFI) in Taiwan ; Numerical fatigue scale 0-10 ; Multidimensional Fatigue Symptom Inventory-Short Form (MFSI-SF); Numerical fatigue scale; fatigue level in 0-2 rating scale ; Visual Analog Scale for fatigue; fatigue was assessed as part of EORTC QLQ-C30's and 15-

item Cancer Fatigue Scale (CFS-D). The 15-item Cancer Fatigue Scale (CFS-D) is considered a good reliability with alpha score 0,94 covered three dimensions of fatigue affective, cognitive, and physical fatigue (Lötzke et al., 2016). The BFI was more specific assessing fatigue related cancer during chemotherapy regarding psychological distress and mood disturbances, fatigue severity, in impact to daily activity in recent 24 hours (Taso et al., 2014). It also similar to the fatigue rating score (TFRS) 37 items but involving 3 subscales (Tang et al., 2014b). The MFSI-SF is a comprehensive tool determined fatigue in dimension: general fatigue, physical fatigue, emotional fatigue, mental fatigue and vigor (Zhang et al., 2016a). The simplest one by asking two questions regarding : the average level of fatigue during 24 hours and the worst level of tiredness during 24 hours so the patient could give rated 0-11 (Yeh & Chung, 2016). Uniquely the visual analog scale of fatigue using 10mm measurement from left means no symptom at all and the right side refers to the more severity (Lan et al., 2015).

Fatigue in standardized nursing language, the indicators are well mentioned in nursing outcome classification (NOC) (Moorhead, 2009). The NOC label is fatigue level. There are 28 indicators. The subjective symptoms are exhausted, loss of libido, appetite, mood, concentration. The biomarker assessments are hemotocrit, oxygen saturation and thyroid function. Based on clinical examinations found joint pain, muscle pain, sore throat, headache, tender lymph nodes, decreased balanced of movement and rest/sleep.

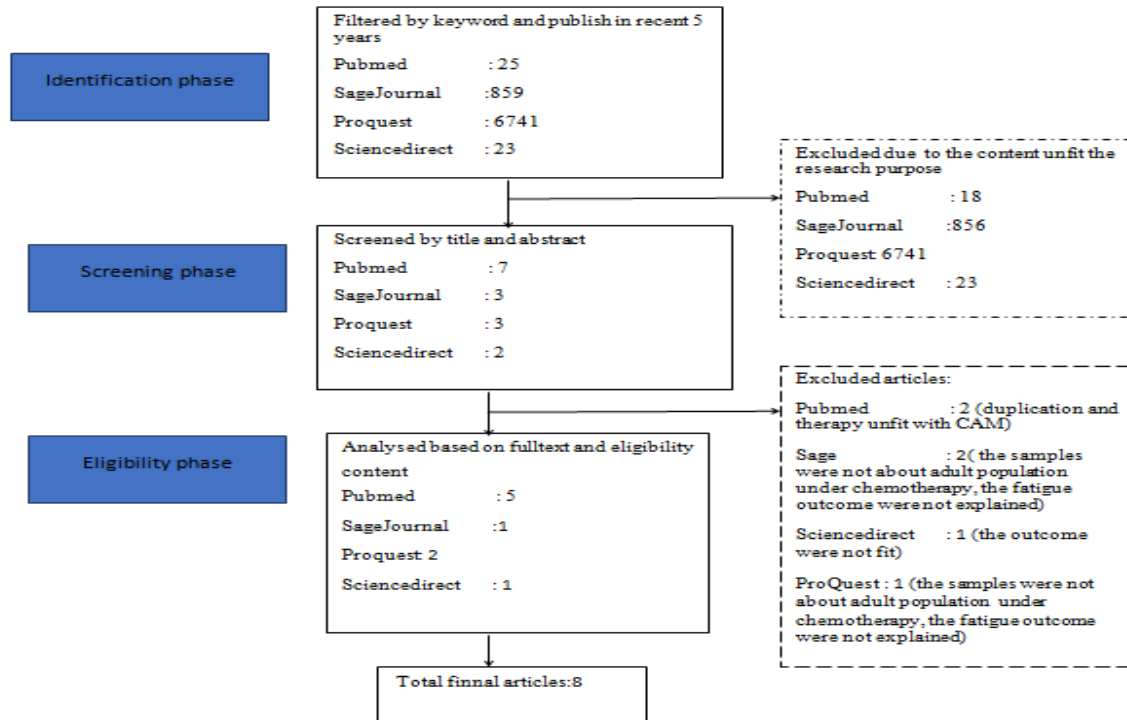


Figure 1. Data Finding Flowchart

Author	Study Tipe	Sampling Technique	Method details	Analysis	Total Score
Tang et al (2014)	6	3	1	3	13
Taso et al (2014)	6	3	1	3	13
Yeh dan Chung (2016)	6	3	1	3	13
Zhang et al (2016)	6	3	1	3	13
Miladinia et al (2017)	6	3	1	3	13
Uysal et al (2017)	6	3	1	3	13
Su, Chen et al (2015)	6	2	1	3	12
Lötzke, Desiree, et al (2016)	6	3	1	3	13

Table 3. Critical Appraisal Result

Author/Country	Method	Intervention	Result
Tang et al (2014) Taiwan	RCT involved 57 patient. Instrument : Fatigue Rating Scale with 37 items	The selected acupressure points are Hegu (LI4), Zusanli (ST36), and Sanyingjiao (SP6). Each point is stimulated for 1 minute every day for 5 months.	The results showed that subjects who received acupressure with and without essential oils experienced a significant reduction fatigue.
Taso et al, 2014 Taiwan	RCT involved 60 samples divided into intervention and control group. Instrument :Brief Fatigue Inventory (BFI)	The intervention group received yoga in 8 weeks in total within 2 times session a week each session 60 minutes. The yoga exercise consist of anusara yoga, mild stretching, and relaxation.	Yoga program for 8 weeks can reduce fatigue in oncology patients, especially breast cancer who received adjuvant chemotherapy.
Yeh and Chung (2016) Taiwan	RCT involved 108 samples divided into intervention and control group Instrument : Numerical fatigue scale 0-10 and 2 open ended questions. The study takes 21 days until the final assesment	The Chan-Chuang qigong exercises given earlier are summarized in the booklet as a guide. Dose of exercise is at least 15 minutes for the patient and no more than 1 hour, not 30 minutes before and after eating. This intervention is carried out by the patient independently.	In the third week of Chan-Chuang qigong practice can significantly reduce fatigue in patients with Non Hodgkin's lymphoma who were receiving chemotherapy
Zhang et al (2016) China	RCT involved 98 samples divided into intervention and control group. Instrument:Multidimensional Fatigue Symptom Inventory-Short Form (MFSI-SF).	The intervention group received Tai chi training while the control group received low impact exercise. The exercise dose is given for 12 weeks once a day with a duration of 60 minutes.	Taichi exercises can reduce fatigue and improve physical fitness in lung cancer patients who got chemotherapy
Miladinia et al (2017)	RCT involved 60 samples divided into intervention and control group. Instrument : Fatigue was assesed by numerical scale.	The intervention group received SSBM conducted by oncology nurses who had received training. The intervention was given 10 minutes / session for 4 weeks. Massages performed include stroke using the thumb in the neck area 20 times for 30 seconds, stroking movements from head to sacrum using the palm 60 times for 120 seconds, stroking in the shoulder blade area using the thumb 20 times for 60 seconds, movement stroking from the spine to the neck 10 times, and repeating the movement for up to 10 minutes.	Slow-stroke back massage (SSBM) significantly decreases sleep disturbance, fatigue, and pain and improves sleep quality.

Author/Country	Method	Intervention	Result
Uysal et al (2017)	RCT involved 60 samples divided into control and intervention group. Instrument : the fatigue level was assessed in 0-2 rating scale and open ended question.	The dosage of massage was given 2 times a week during 5 weeks along the chemo.	Classical foot mass is effective in reducing pain levels and the incidence of distension. Reflexology foot massage effectively reduces the level of weakness.
Su, Chen et al (2015)	This quasi experimental study involved 62 samples divided into intervention and control group. Instrument using Visual Analog Scale for fatigue.	The accupressure was given 5 times during a week. Each session giving 4 minutes stimulation on the acupoints:Yintang, Shenting, Cuanzhu, Taiyang, Jingming, Yangbai, Bahui, and Fengshui.	In the intervention group there was a significant increase in fatigue, but there was no difference in the scale of depression in the intervention and control groups.
Lötzke, Desiree, et al (2016)	The design used was an RCT in 92 samples divided into intervention and control group. Instrument : fatigue was assessed as part of EORTC QLQ-C30's and additional questionnaire 15-item Cancer Fatigue Scale (CFS-D).	Iyengar-Yoga consisted of asanas, breathing and the use of equipment such as belts, blocks, ropes, and blankets to help the weak patient move and decrease risk of injury. Both Yoga and PEI group receive 60 minutes/session a week within 12 weeks. Additionally patients did the exercise at home 20 minutes twice a week following the written instruction protocol.	During a patient undergoing chemotherapy, yoga is not effective compared to conventional activities, it can be used for the recovery phase

Table 2. Content Summary of Data Findings

DISCUSSION

Howard et al (2018) recommends in nursing intervention classification (NIC), there are two suggested intervention energi management and optional interventions. Energi management including environmental management, mood management, exercise promotion, nutrition management, sleep enhancement, coping (mutual goal setting, decision making support), chemotherapy and medication management. The optional suggested activity therapy, relaxation therapy, and anxiety reduction. Complementary and alternative therapy also part of medication that added in standard regiment or as optional therapy. Complementary and alternative therapies in nursing follow the National Center for Complementary and Alternative Medicine (NCCAM) Classification involved natural products, mind-body therapies, body manipulation, and energi therapies (Ruth, 2014). Those therapies also common mentioned explicitly in the NIC. The examples of mind-body therapies such as guided imagery, journaling, yoga, meditation, humor, music, praying, journaling, hypnosis, animal assisted therapy. Body manipulations such as massage, tai chi, exercise, and relaxation. Energi therapies such as light therapy, healing touch, reiki, acupressure, reflexology, magnet therapy. Natural product such as the used of aromatherapy, herbs, and functional food and nutritions.

The evolution of complementary and alternative therapy in nursing widely suggested based on nursing theory. Florence Nightingale declared optimal healing from environment manifested in massage, therapeutic touch, use of relaxation methods, cold and heat therapies, imagery, music intervention (Hajbaghery, 2018). The other nursing theories such as energi field by Roger and Sunrise Model Theory also become the based on complementary therapy due it has

been used as selfcare influence by culture applied by self administration or provided by trained therapist (Traa et al., 2016).

In this study found two evidences applied massage (Miladinia et al., 2017; Uysal et al., 2017), two evidence applied acupressure (Lan et al., 2015; Tang et al., 2014a), two evidences about yoga (Lötzke et al., 2016; Taso et al., 2014), and two promoted qigong and taichi exercise (Yeh & Chung, 2016; Zhang et al., 2016b). The massage intervention applied in the back and foot was recommended during chemotherapy at hospital setting administered by nurses or therapist.

Acupressures on acupoints on head, forehead, and legs was recommended to improve energi level that can be administered by therapies or trained care giver. It could promote comfort during the chemo session. Yoga, taichi and qigong were recommended as rehabilitation post chemotherapy session. Those therapies were considered as low impact exercise. It is possible practised by the patients at community setting, home based intervention after course lesson. Limitation in this study is regarding the variation of the oncology samples. The evidence also did not explained specifically the regiment of chemotherapy. The side effect of the complementary and alternative therapy was not reported. Due to the safety consideration, the complementary and alternative therapies should notify the patient's feedback such as comfort level and vital sign status.

CONCLUSION

Complementary and alternative therapies including acupressure, yoga, Qigong, Thai-Chi, Slow Back Stroke Massage, can reduce fatigue in cancer patients with chemotherapy. There is no standardized time for complementary and alternative therapeutic interventions, regarding

unspecific physical responds among the patient. Complementary and alternative therapies were not only relieve fatigue as physical complain but also the other symptoms such as anxiety, depression, quality of life, quality of sleep, and pain. This study suggest complementary and alternative therapy should be nurse mandatory skill that can be applied in inpatient, outpatient, or community. As part of nurse intervention, complementary and alternative therapy not only can be given by health care to patient but also can be done by empowering patients and caregiver. Nurse has role to teach patient and family with chronic illness simple and noninvasive treatment as supportive therapy to relieving symptom.

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