ORIGINAL ARTICLE

Effect of Mindfulness Intervention on the Intensity of Pain and Anxiety in Nasopharyngeal Cancer Patients

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ABSTRACT

Aim: Physical and psychological responses that occur in patients with nasopharyngeal cancer is the especially caused the effects of treatment. Problems of pain and anxiety in nasopharyngeal patients at the treatment becomes very important because it can cause comorbidity, psychological trauma and increased mortality. Mindfulness is a safe psychotherapy, can be done anywhere, and aims to transform the consciousness into the stage of acceptance.

Methods: This study aimed to determine the effect of mindfulness intervention on the intensity of pain and anxiety in patients with nasopharyngeal cancer who are undergoing treatment at RSUP Dr. Kariadi Semarang. The method used in this research is quasy experiment with pre-post control trial design. The amount of samples are 33 subjects which taken based consecutive sampling. This study involved respondents in outpatient radiotherapy, each respondent received mindfulness intervention for 6 sessions, divided into 3 meetings. Measurement of pain intensity and anxiety was done before and after being given mindfulness for 6 sessions using Visual Analogue Scale (VAS) and Hamilton Anxiety Rating Scale (HAM-A). Hypothesis testing is performed to see the effect of mindfulness by distinguishing the results before and after intervention.

Results: The results showed a decrease in average pain rate from VAS value 4.12 (moderate pain) to 3.06 (mild pain) and decreased anxiety level from HAM-A value 21.19 (moderate anxiety) to 17.88 (mild anxiety) in the group treatment. There was a difference of pain and anxiety level before and after mindfulness in intervention group with P value = 0,001 (P <0,005).

Conclusion: Mindfulness interventions can be used as integrative therapy to reduce pain and anxiety in nasopharingeal cancer patients.

Keywords: anxiety, mindfulness, nasopharyngeal cancer, pain

INTRODUCTION

The prognosis, symptoms of the disease and the effect of treatment on cancer patients will result in different physical and psychological responses to each individual. Physical and psychological responses that often occur in cancer patients are the onset of pain and anxiety[1].

In advanced-stage nasopharyngeal cancer patients, pain and anxiety primarily occur during treatment and may last for months or even years after treatment is completed[2]. Thirty percent of KNF patients will complain of pain when they are diagnosed and will increase to 65-85% in development and treatment[3]. In a cross-sectional study of 157 patients with criteria 6-12 months after diagnosed with nasopharyngeal cancer, 13.4% of patients were found in moderate anxiety and 7.1% had severe anxiety[4].

The physical impact of treatment on nasopharyngeal cancer patients is a major stressor that cause pain and anxiety, that will often cause different psychological distress from patients with other types of cancer. Functional disorders due to radiotherapy effects such as respiratory disorders, inability to communicate, swallowing disorders, and physical appearance will cause emotional trauma. This physical impact can last up to 3 months after completion of treatment[2,3].

Patients during treatment is very important, because psychological distress can lead to comorbidity and trauma. Comorbidities in nasopharyngeal cancer patients may decrease survival rates and increase mortality risk. Studies show that 40% of nasopharyngeal cancer patients die after 23 months due to comorbidity[5].

Developing adaptive coping is very important at the stage of treatment of nasopharyngeal cancer patients. The results of the study showed that unpleasant emotional coping would appear in nasopharyngeal cancer patients at the first of the diagnosis and would increase especially during mid-treatment, then decrease in 3 months post-treatment. Emotional coping include self-blame, wishful thinking and avoidance[4]. Nurses should introduce effective coping strategies in patients during the treatment period, so that the patient can adapt and accept his current condition. Accompanied health education and coping strategies can reduce anxiety and improve the quality of life of nasopharyngeal cancer patients[3].

Pain and anxiety must be integrated both physically, psychologically, socially and spiritually. Pharmacological intervention of pain and anxiety according to WHO standard in nasopharyngeal cancer is done by analgesic (NSAID, Opioid) and anti-depressant which the use of these drugs in the long term can cause toxicity that disturb some system in body.[2] Forty-three cancer patients with pain and anxiety cannot be managed only pharmacologically with analgesics and antidepressants[6]. The study of pain in cancer patients shows that interventions that combine analgesics and psychological multi-component therapy can make patients more stable in controlling anxiety and pain-related depression than patients who only receive medication[7].

Psychotherapy Mindfullness provides many advantages, in addition to easy and can be done alone, this intervention is quite safe to do. Mindfulness Based Intervention in mamae cancer patients can reduce anxiety, pain, fear of recurrence and improve physical health and

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quality of life.[8] Mindfulness method can accommodate aspects of individual spirituality to the stage of acceptance. A strong correlation between the level of spirituality to physical health status, psychological and immunity of cancer patients in accordance with psychoneuroimmunology theory. The study of lung cancer patients' survivors shows that spirituality affects lymphocyte-mediated biomarkers in order to increase disease response rates for treatment, a 3-year survival increase, and an increased average post-chemotherapy lymphocyte count[9].

Mindfulness aims to transform consciousness, by integrating mind, body, and soul (mind, body and soul), resulting in harmony within the individual[10]. This self-awareness that helps the individual toward the acceptance stage as an effective coping strategy toward an adaptive state[11].

In the preliminary study showed that 79.75% of cases of nasopharyngeal cancer already undergoing an advanced stage and got radiation treatment. Assessment of pain and anxiety in 3 patients nasopharyngeal cancer in Oncology ward showed moderate pain complaints, mainly due to the effects of radiation that is with the incidence of burning in the mouth, canker sores, headaches and difficulty swallowing. The anxiety due to ignorance about the prognosis of the disease, physical impairment due to radiation and cost issues.

The purpose of this study was to look at the effect of mindfulness on the intensity of pain and anxiety in patients with nasopharyngeal cancer during radiation treatment by identifying different levels of pain and anxiety before and after intervention in the intervention and control group.

METHODS

The design used in this research is quantitative research with quasi experimental design of Pre and Post Test Control Trial. Respondents were divided into 2 groups, who were given mindfulness meditation training as much as 6 sessions as intervention group and the who only received radiation service from the hospital as control group. The study was conducted in the ward of radiotherapy of dr Kariadi hospital Semarang- Indonesia, conducted for 3 weeks.

The sampling technique used is consecutive sampling with inclusion criteria: 20-70 year old adult patient, patient receiving radiation treatment, experiencing pain and anxiety, patient understand verbal communication language, patient no hearing loss and no mental disorder. The number of samples was 34 respondents, 1 respondents in the intervention group did not attend the full training sessions, so they were excluded from the sample.

Measurement of pain intensity is done by using Visual Analogue Scale (VAS) and for intensity anxiety by using Hamilton Anxiety Rating Scale (HAM-A). Measuring the intensity of pain and anxiety on the respondents was done before and after mindfulness given both in the intervention group and the control group.

Research Procedure: Mindfulness interventions will be given for 6 sessions to be performed by a certified therapist in this intervention. To assist the trainer to smooth the course of the training and to observe and record things related to the subject's response during the training, 2 assistant trainers were used. Mindfulness exercise is done in 3 meetings. The first meeting is an introductory session and an exploration of experience, the second to sixth encounters are mindfulness sensory and emotional exercises with body scanning and self-conscious mindfulness exercises. The introductory and exploration phase aims to explore the experiences of respondents regarding diseases, complaints and pain and anxiety responses by filling out the VAS questionnaire and HAM-A. Stage of body scanning exercise aims to make responders able to recognize and realize some sensory objects that can appear on their body (body detection) by directing attention on some body parts from toes until the head is relaxed, while the self-conscious mindfulness exercise stage Aims to enable the respondent to recognize and be aware of his current feelings and thoughts and accept them well.

Statistics Analysis: The analysis test was performed to analyze the intensity of pain and anxiety before and after intervention. Hypothesis test is done by using paired t-test because the data is normally distributed.

Ethics: The research was conducted after obtaining the permission from the research ethics commission of Diponegoro University Medical Faculty with the publication of ethical clearance. This study was conducted using ethical principles that include maleficence, beneficence, autonomy and justice. The researcher did not use patient's name, initials, and no medical record in taking the data. The respondent is first explained about the purpose and procedure of the research that will be done to him and declare his consent by signing the inform consent.

RESULTS

Based on the demographic study it was found that the sex of most respondents were male, 12(75%) in intervention group and 11(64,7%) in control group. Overall respondents were patients of advanced stage nasopharyngeal cancer, with the highest number being stage 3, 14 (87,5%) in intervention group and 15 (88,2%) in control group.

Table 1: Characteristics of respondents by gender, stadium and social support (n=33)

Characte-ristics	Intervention Group (n = 16)	Control Group (n=17)	Total
Gender			
Male	12(75%)	11 (64.7%)	23(69.7%)
Female	4 (25%)	6 (35.3%)	10(30.3%)
Stadium			
Stadium 3	14 (87.5%)	15 (88.2%)	29(87.9%)
Stadium 4	2 (12,5%)	2 (11,8%)	4(12,1%)

Table 2: Characteristics of Respondents by Age and the Amount of Radiation performed

Variable	Mean	SD	Min-Maks	95% CI
Age				
Intervention Group	46,4	12,6	24-67	40.22-52,66
Control Group	48,9	11,4	24-62	43,06-54,82
Amount of Radiation				
Intervention Group	17	8,7	2-31	12,67-21,96
Control Group	15	6,9	1-26	11,08-18,21

Measurement with VAS, the level of pain in patients with nasopharyngeal cancer during radiotherapy is on the

level of moderate pain. After a 6-session mindfulness in the intervention group there was a decrease in pain level as indicated by a decrease in mean value of VAS from 4.12, to 3.06, paired t-test show *P=0.001*. While in the control group tends to increase,the mean value of VAS from 4.24 to 4.35. Measurement of anxiety levels with HAM-A, the level of anxiety in nasopharyngeal cancer patients is on the level of moderate anxiety. A six-session mindfulness intervention in the intervention group showed a decrease in anxiety level as indicated by a decrease in mean value of HAM-A from 21.19 to 17.88, paired t- test show *P= 0.001*. Data VAS and HAM-A from both group both groups were homogeneous and normally distributed with p value> 0.005.

Table 3. Intensity of pain, normality test, and homogeneity test of respondents before and after intervention

Variable	Group	Mean	Min-Max	SD	95% CI	*P Value of Normality (Shapiro-Wilk)*
Pain Intensity (Before)	Intervention	4,12	2-6	0,957	3,61-4,64	0.088
	Control	4,24	2-6	1,348	3,54-4,93	0.101
Pain Intensity (After)	Intervention	3,06	2-5	0,854	2,61-3,52	0.019
	Control	4,35	2-7	1,455	3,60-5,16	0.225

Table 4. Anxiety intensity, normality test, and homogeneity test of respondent before and after intervention

Variable	Group	Mean	Min-Max	SD	95% CI	*P Value of Normality (Shapiro-Wilk)*
Anxiety Intensity (Before)	Intervention	21,19	4,96	14-30	19,3-24,6	0.596
	Control	22,65	3,52	15-27	20,8-24,5	0.091
Anxiety Intensity (After)	Intervention	17,88	3,931	15-24	15,8-19,9	0.062
	Control	23,53	3,737	15-28	21,6-25,5	0.101

Table 5. Differences in pain intensity of respondents before and after intervention with paired t-test

	Group	Mean	Difference	SD	95 % CI	P Value
Pain value before intervention	Intervention	4.12	1.062	0.854	0.607-1.518	0.001
Pain value after intervention		3.06				
Pain value before intervention	Control	4.24	-0.118	0.600	-0.42– 1.91	0.431
Pain value after intervention		4.35				

Table 6. Differences in anxiety intensity of respondents before and after intervention with paired t-test

	Group	Mean	Difference	SD	95 % CI	P Value
Anxiety value before intervention	Intervention	21,19	4.062	3.435	2.232-5.893	0.001
Anxiety value after intervention		17,88				
Anxiety value before intervention	Control	22,65	--.882	1.965	-1.893–0 .128	0.083
Anxiety value after intervention		23,53				

DISCUSSION

Patient's pain level during radiation treatment is still in a moderate level. Complaints of respondent pain were mainly shown due to difficulty swallowing and some due to mucositis. In this study, it was found that most of the respondents were adult age with male gender. Some pain management experts claim that the pain response in adult patients will differ from old age. Patients with young adulthood will respond more painfully than in the elderly age due to their metabolic system, whereas with regard to gender, the male pain response is higher because this is due to the inability of men to express verbal pain and to associate with male- Dominant men and holds the demands of roles and responsibilities within the family[12]. Statements for pain responses based on age and sex did not match the data from the results of the study because the response of the respondent's pain was still moderate.

Other factors that may affect the pain response are experiences with pain, pain perception and endorphin[13]. A person who is often exposed to pain for long periods of time may be more tolerant and able to manage his pain well, according to Roy's adaptation mechanism which states that during a stressful event one can use coping mechanisms to adapt to stimuli. In accordance with the characteristics of respondents that all respondents are patients of advanced stage nasopharyngeal cancer who have undergone various modalities therapy so have been exposed to pain since long because of disease and its treatment effect. Social support from family makes sense of happiness among respondents who physiologically influences neuro endocrine response by decreasing cortisol levels and increasing endhorphin which will modulate pain according to gate control theory[14].

Nasopharyngeal cancer patients will experience moderate to high levels of anxiety at the time of diagnosis, during treatment and after treatment, of which 30-40% of these anxiety will increase during treatment[3,4].

Respondents stated that the anxiety they experienced during their treatment was mainly affected by the disruption and physical changes caused by the effects of medication that are currently being undertaken. Dry mouth, difficulty and pain when swallowing and hyperpigmentation on the face are the main things that make anxiety. Oncology Nursing Forum mentioned that the occurrence of anxiety in patients with nasopharyngeal cancer is mainly due to physical disorders associated with dry mouth, loss of appetite, insomnia and pain experienced by patients during the treatment. Changes in body image experienced by patients because of the effects of radiation is also the heaviest blow for the client itself[3]. Anxiety response experienced by the respondents in this study is shown by the behavior of anxiety, irritability, fear of the mind itself, loss of interest in hobby, sadness, loss of interest in sex.

There were 1 respondent who experienced increased pain intensity from mild to moderate and 2 respondents from moderate to severe pain. Research conducted by Xinghua Liu stated that short mindfulness had a significant effect on improving pain tolerance ($p<0.01$) and decreasing

immersion distress respondent (p <0.05) when immersed in cold-pressure compared with distraction and spontaneous strategy[15]. Other studies have suggested that pain management in cancer patients that combine analgesics and psychological multipart therapy may make patients more stable in controlling anxiety and depression associated with pain than patients who only receive medication[7].

Previous studies have suggested the effect of mindfulness meditation for mamae cancer patients led to decreased anxiety, depression, fatigue and fear of recurrence in patients. Also mentioned in this study there is an increase in quality of life as indicated by the improvement of physical health in patients[8].

Nasopharyngeal cancer patients undergoing radiation do some coping strategies one of them is emotion-focused coping. Emotion-focused coping that is accommodative to overcome psychological problems in nasopharyngeal cancer patients is reconciliation, hope, self-inventory, self-reflection and spirituality[16]. In this study a mindfulness procedure that involves the exploration of experience, body detection and mindfulness self-conscious which is a combination of self-inventory and self-reflection coping. Self-inventory coping strategies are coping to help individuals strengthen internal resources and improve their ability to access those resources, whereas self-reflection helps individuals to accept what is now and help through unpleasant experiences without avoiding it[16]. All these processes can be achieved because mindfulness has several positive qualities that arise consciously, among others: without judgment, without coercion, acceptance, patience, trust, openness, release, tenderness, empathy, gratitude, and compassion and aims to decrease emotional reactions And improve cognitive assessment in a positive way (change perception) so that it can grow the acceptance[17]. Awareness to accept this is able to reduce the intensity of pain and anxiety and foster confidence and motivation to perform treatment. Statement of respondents after attending mindfulness exercise is that they feel more calm, comfortable and more sincere in accepting what is happening at this time.

The coping ability of nasopharyngeal cancer patients will also be related to quality of life. The quality of survival of KNF survivors is still poor compared to other cancer survivors, this is related to the lack of adequate coping in the face of physiological and psychological disorders due to treatment that is still suffered even though the treatment is complete. Mindfulness is an effective coping strategy performed as a supportive care needs in psychological terms against cancer patients at the time of diagnosis and at the time of treatment[18,19,20].

CONCLUSION

The intensity of pain and anxiety in nasopharyngeal cancer patients undergoing radiotherapy is at a moderate level. A mindfulness intervention for 6 sessions can decrease the patient's pain and anxiety level, as indicated by differences in levels of pain and anxiety before and after intervention in both groups. Hypothesis test was performed by paired-t test which showed P value = 0.001 (P <0.005) which means there was a significant decrease of pain and anxiety level in nasopharyngeal cancer patient after mindfulness intervention. From the results of this study need to develop further research with a larger number of samples and variables varied, so it can enrich science in the field of nursing and add insight into nursing actions applicative and independent based on evidence-based practice

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