Coffee and comfort level

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ORIGINAL ARTICLE

Effects of Coffee as Oral Hygiene Media in Patient with Head and Neck Cancer on Comfort Level

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ABSTRACT

Background: The incidence of oral mucositis occurs as much as 75-100% in patients with head neck cancer undergoing radiotherapy. Mucositis causes discomfort in the mouth. The treatment of mucositis was usually performed by giving an oral hygiene agent. Robusta coffee as an alternative for oral hygiene media can increase the comfort level and not much research on this topic even though in robusta coffee contain antiinflammation and antibacteria.

Methods: This study used a pre and posttest quasi-experimental design with a control group. The samples were 16 patients in the control group and 16 patients in the intervention group selected by purposive sampling. The intervention wasin the form of oral hygiene using robusta coffee mixed with plain water. The data were taken for 5 days using comfort level with Verbal Rating Comfort Scale.

Result: The results showed that the majority of respondents were of middle adult (68.9%), male gender (62.5%), undergoing radiotherapy for 16-20 times (37.7%), and having an underweight nutritional status (56.2 %). The patient's comfort level before the intervention had an average grade of 5.4, and after the intervention, the mean value was 6.4. There were effects of oral hygiene with coffee in head and neck cancer patients on increase comfort level with a p-value <0.05.

Conclusion: This study concluded that oral hygiene using robusta coffee could increase comfort level for head and neck cancer patient with mucositis.

Keyword: comfort, head and neck cancer, mucositis, robusta coffee

INTRODUCTION

Oral hygiene is one of the nurse's independent actions to maintain oral hygiene by preventing and controlling dental plaque, preventing inflammation and infection, improving comfort, nutritional intake, and verbal communication. Oral care using honey and coffee has been shown to effectively reduce stomatitis in adult cancer patients undergoing chemotherapy and radiotherapy[1]. The most common oral complications found after chemotherapy and radiation therapy are mucositis, local infections, pain, and hemorrhage that can interfere with patient comfort. While the side effects are dehydration and malnutrition. Radiation in the head and neck areas can cause injury to the salivary gland, oral mucosa, muscle, and alveolar bone that may lead to xerostomia, dental disease and osteoradionecrosis[2].

Coffee is not only known as a beverage but also as an alternative medicine in dealing with various types of injuries. One of the most common coffee plants in Indonesia is Robusta coffee (Coffeacanephora). Levels of caffeine contained in Robusta coffee beans between 1.50-2.72%. A study proves that robusta coffee has an effect to accelerate the wound healing process with experimental method. The incision wound is made on the back with a length of 5cm. The wound on the back is treated with a robusta coffee powder then covered with sterile gauze. Robusta coffee powder and gauze are replaced twice daily. Observations were made for 2 weeks comparing macroscopic images of both lesions. The results showed that on the 7th day both sores were still open, dry, looked not too deep, and the size of the treatment wound is shorter than the control wound. Day 14th both wounds have started to close, the crust is still attached to the surface of the wound and the size of the crust wound treatment is smaller than the control wound. The result of robusta coffee powder (Coffeacanephora) has the effect of accelerating the healing of incision wounds on the skin without pain[3]. Coffee has many useful ingredients for the body, one of which is caffeine useful in suppressing the growth of cancer cells. Caffeine works in reducing the risk of type 2 diabetes mellitus (by maintaining the body's sensibility to insulin), Parkinson's disease, and Alzheimer's[4].

The patient's problems caused by mucositis cause a discomfort that needs to be overcome. Comfort is an important part of care[5]. Comfort is the basic value that makes the goal of nursing at all times. The comfort theory approach developed by Kolcaba offers comfort as the forefront of the nursing process. Kolcaba sees that holistic comfort is a complete comfort encompassing physical, psychospiritual, environmental and psychosocial comfort. The Kolcaba Comfort theory approach used in the treatment of cancer patients undergoing mucositis is described as the nurse's way of meeting holistic comfort needs: physical comfort, psychospiritual, environmental and sociocultural needs of cooperation between nurses and the patient's family. The comfort theory approach that concerns physical, psychospiritual, sociocultural and environmental comfort as well as family involvement in nonpharmacological pain management is expected to help improve holistic comfort.

This holistic comfort will affect the perception of the patient in the face of pain so that the pain is reduced, lost

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or the patient is able to increase positive coping of pain at the time of experiencing mucositis. Within the taxonomic structure Kolcaba identifies patient comfort needs and designs interventions to be provided to measure the effectiveness of the intervention. Kolcaba describes the discomfort as a multidimensional anxiety, including relating to feelings, cognitive, and affective components.[6]For that the nurse involves comfort measures fully with the patient. Interventions to provide comfort to patients can be applied to a variety of patient conditions such as cancer patients with mucositis. To provide comfort the patient requires Comfort Food.[7]Comfort food that can be given to patients who have problems in the oral cavity due to radiotherapy that affects the comfort, among others, by providing a type of food that can help the wound healing process, and from the evidence found to provide coffee. Therefore the importance of nursing orders based on best practice evidence to overcome mucositis problems that affect comfort in cancer patients one of them with the use of coffee as a mucositis treatment.

METHODS

The design of this study used quasi experiment, pretest - posttest with control group design. The study wasconducted in central hospital in Central Java, Dr. Kariadi Hospital Semarang, as researchplace for each group. The study was conducted in June 2017.

Data collection method used is primary data where respondents directly write characteristic data. Secondary data used is data about the complaints when undergoing radiotherapy found in the oral cavity when undergoing radiotherapy. Method of data retrieval is done that is: a. data were collected directly by the researchers. After obtaining the permission of the researcher to intervene on the respondent according to inclusion & exclusion criteria.

Before the intervention the researcher examines the patient's comfort level. Whether it is a control group or a treatment group. Measurements with Rating Comfort Scale instruments on day 1 and day 5 before and after intervention; The intervention of giving of coffee to treatment group on day 1,2,3,4, and day 5 was done by final assessment of comfort level.

Sample: The respondents in this study consisted of 32 head neck cancer patients who underwent radiotherapy divided into two groups, each group consisting of 16 people. The inclusion criteria are stipulated as follows: a. the subjects of the study were head neck cancer patients who had mucositis, b. respondents aged 19-55 years, c. no allergy with coffee, d. In Shinvaradiotherapyand patients had at least five times undergone radiotherapy. Exclusion criteria is the patient has a habit of drinking coffee every day.

Tools Measurement: The tool used to measure comfort level is the Verbal Rating Comfort Scale that has been tested for validity and reliability in researches in Indonesia. Comfort can be measured before and after intervention with coffee. Based on the Kolcaba comfort theory, the comfort level assessment can be measured by Verbal Rating Comfort Scale is by convenience measurement using 0-10 for the perceived comfort level. For rating instrument rating is 0 if it is not comfortable up to the highest comfort value 10. Previously this questionnaire has been done in previous research that is validity test using Pearson Product Moment correlation test with r result = 0.75 which means valid for use. Realibility test by using Cronbach Coefficient Alpha obtained result of 0,959.

Ethichs: Ethical approval is obtained from the medical research ethics committee of medical faculty of Diponegoro University-Dr. Kariadi Semarang numbers 181/EC/FK-RSDK/IV/2017.

Statistics: Data analysis was performed after the final result showed that the influence of coffee intervention in the intervention group was compared with control group on patient comfort level. Univariate analysis to describe or describe respondent characteristic (age, gender, duration of radiotherapy, and nutritional status), bivariate analysis know patient's comfort level before and after oral hygiene with coffee, the analysis used parametric test with paired t-test and to show the effect after intervention in each group analyzed by independent t-test. Furthermore, normality test was done using Shapiro Wilkand homogeneity test wasdoneusingLevene's test and chi square test.

RESULTS

The results showed that most of the respondents entered middle age (40 years - 60 years) and with radiation 16-20 times as many as 6 people (37.7%) both in the intervention and control group. The sexes in the intervention group and control group were predominantly male, in as many as 10 people (62.5%) in each group. In the BMI (Body Mass Index) intervention group was underweight as many as 9 people (56.2%). The data can be seen in Table 1.

Table 2.shows before the intervention group treatment the average value of comfort is 5.4 and after the treatment the convenience value to 6.4. The control group average of the pre-treatment comfort score was 5.5 and after treatment was 5.4. The patient's comfort score before and after intervention in the control p 0.30 and intervention group had p value 0.00 so that the comfort value before treatment and aftertreatmenthave difference inintervention group. The results showed that coffee had influence for comfort level in Table 3 with p value 0.00 there are difference scoring after treatment in each group.

Table 1 Characteristic Data of Respondents

Characteristics	Frequency (%)		P value
	Intervention (n = 16)	Control (n = 16)	
Age			0.698
Early Adult(18-40 years old)	5 (31,1%)	7 (37,3 %)	
Middle Adult(41 – 60years old))	11(68,9%)	9 (62,7%)	
Sex			
Woman	6 (37,5 %)	6 (37,5 %)	1.00
Man	10 (62,5 %)	10 (62,5 %)	
Long Radiotherapy			
5-10	4(24,9 %)	6 (37,7 %)	0.547
11-15	4 (24,9 %)	3 (18,6 %)	
16-20	6 (37,7 %)	6 (37,7 %)	
>20	2(12,5%)	1(6,3%)	
Body Mass Index			
Underweight	9 (56,2 %)	8 (50 %)	0.629
Good	7 (43,8 %)	8 (50 %)	
Obesity	(0%)	(0%)	

Table 2.Differentvaluesofcomfort level Before and After Treatment In Intervention and control Group

	Group	Mean (sd)	Difference	IK95 %	P Value
Comfort level (before)	Intervention	5.44 (0.81)	1.00	-1.27 – -0.72	0.00
Comfort level (after)		6.44 (1.81)			
Comfort level (before)	control	5.50 (0.87)	0.06	-0.71 – 1.96	0.30
Comfort level (after)		5.44 (0.81)			

Table3.DifferentValues of comfort level between Intervention and Control Group After Treatment

After treatment	Mean (sd)	(IK95 %)	P Value
Comfort level		1.312	0.00
Intervention (after)	6.4 (1.81)		
Control (after)	5.4 (0.81)		

DISCUSSION

Factors that affect the occurrence of mucositis that will affect the comfort, among others, age most of the adult age is supported by several studies which states that most cancer patients are adult patients with age 41-60 (32.2%)[8], the results of this study are similar to those study but unlike other studies conducted in 2012, most neck cancer patients at age 41-55 (32.4%)[9]. The age distribution of head cancer of the neck in each region varies greatly due to the difference in the incidence region[10]. In areas of high incidence the incidence of head cancer of the neck increased significantly after the age of 30 years[11].

The study was mostly followed by male respondents in each group, according to a study of 199 patients in which more than 70% of patients were male[12]. Men are more commonly affected by head cancer, especially nasopharyngeal cancer than females with a ratio of male and female ratio is 2.3: 1. This comparison is similar to that of the other research which is male and female ratio 2,6:1[13]. Male dominance compared with women is associated with cancer-causing factors in which male activity is more outdoors than women, especially in rural areas, so it is more commonly exposed to pollution, occupational factors, passive smoking and stress that leads to immune suppression and can trigger the reactivity of Epstein Barr Virus (EBV) (Vaughan, T.L., Steward, A.P., Tesch, Key, 2000). Cigarette users can also increase 2-6 times the risk of nasopharyngeal cancer[14].

Oral hygiene is one of the independent actions of the nurse to maintain oral hygiene to prevent, control, treat, or maintain hygiene in the oral cavity and prevent inflammation, infection, and increase comfort, nutritional intake, and verbal communication[15,16]. Coffee mouth care can provide comfort in patients with head neck cancer undergoing radiotherapy.

Nutrition status in the intervention group of 9 persons underweight was comparable to studies suggesting that radiotherapy in advanced stage neck sufferers led to a significant decrease in nutritional status before and after radiotherapy, but not significantly associated with adverse mucositic events in patient comfort after radiotherapy. Nutritional status before and after radiotherapy with the incidence of mucositis showed that the association between BMI, LOLA, albumin and transferin at the time before radiotherapy with the incidence of mucositis showed significance value of 0.062, 0.209, 0.904, and 0.631 greater than alpha 0.05 (p> 0.05) , So that Ho is rejected and it can be concluded that the relationship between BMI, LOLA, albumin and transferin at the time before radiotherapy with the occurrence of mucositis is not significant[2].

Patients have mucositis at least 5 times after undergoing radiotherapy this is in accordance with the results of preliminary studies conducted by researchers. Factors that affect a person in the incidence of mucositis to comfort has been controlled ie sex, age, BMI, and long undergoing radiotherapy which has a homogeneous distribution of data. Research has controlled for several other factors such as the type of cancer because all the respondents in this study involved patients with head neck cancer who underwent radiotherapy which has a high risk of mucositis and may affect patient comfort.

The results of the study showed that there was a difference in mean comfort after treatment in the

intervention and control group. The mean value of comfort after treatment in the intervention group was 6.4 and the control group with mean of comfort value 5.4. Before the treatment in the intervention group with value 5.4 so that there was a significant difference after the intervention while in the control group there was no significant influence of mean comfort value seen from value before and after treatment. The mean value of intervention group comfort after treatment was higher than the control group. The grouping of convenience values is from 0 to 10 where the value 0 = uncomfortable and 10 = is the highest convenience. Head neck cancer patients undergoing radiation therapy experience many problems of oral complications such as oral mucositis, taste disorders, bleeding, candidiasis, and among the most common oral complications of mucositis experienced by the patient.[17]In this study most respondents complained of pain when swallowing so that when eating mostly using soupy food or soft foods such as porridge or cereal to facilitate the swallowing.

The study stated that in the intervention group after treatment there was a significant difference for the mean value due to self-nursing intervention performed by the nurse in the form of oral hygiene with coffee that could affect the comfort. The nursing action applied is oral hygiene to overcome the comfort problem.[18]With oral hygiene with a coffee solution of cancer patients undergoing radiotherapy feels comfortable. Comfort experienced by patients associated oral hygiene with coffee is the addition of saliva, when rinsing and not sore, cause appetite, not bad breath, and prevent injuries.

Oral hygiene used in this study is by using original robusta coffee of Temanggung as much as 2.09 grams or 1/3 tablespoons dissolved in boiled water at room temperature as much as 27.59 cc. This solution will be used to rinse the patient for 1-2 minutes. Oral hygiene is one of the nurse's independent actions to maintain oral hygiene by preventing and controlling dental plaque, preventing inflammation and infection, and improving comfort, nutritional intake, and verbal communication. Oral care using honey and coffee has been shown to effectively reduce stomatitis in adult cancer patients undergoing chemotherapy and radiotherapy.[1]The most common oral complications found after chemotherapy and radiation therapy are mucositis, local infection, pain and hemorrhage, while the side effects are dehydration and malnutrition. Radiation irradiation of the head and neck area may cause injury to the salivary gland, oral mucosa, muscle and alveolar bone, which may lead to patient comfort issues[2].

The work environment is also very supportive, Dr. Kariadihospital policy in terms of infection prevention and control so this research will improve the knowledge of respondents[19]. Inconsistent oral hygiene among cancer patients is a general patient care problem. The absence of oral hygiene protocols for the treatment of mucositis in cancer patients has not been made in some health services included in the site of the study. To improve comfort and oral hygiene for cancer patients is important to do oral hygiene with the right agent one of them with coffee. Continuous therapy when cancer patients undergo radiotherapy results in lower locoregional control and reduced comfort levels due to oral mucositis in head and neck cancer patients[20]. Discomfort due to cancer pain is also an unpleasant experience as a result of tissue damage due to cancer conditions and side effects of treatment performed[21].

CONCLUSION

The result of this research can be concluded that the respondent characteristic of the research based on age most at middle age (41-55 years old) is 11 people (68.9%) in intervention group and 9 people (62.7%) in control group. The sexes were mostly male in the intervention group and in the control group as many as 10 people (62.5%). Mucositis is most at risk in patients who have undergone> 5 times radiotherapy. So in this study most respondents have undergone radiotherapy for 16-20 times in each control or intervention group of 6 people (37.7%). Nutrition status in the intervention group experienced more underweight as many as 9 people (56.2%) while in the intervention group and control of nutritional status between underweight and normal the same ie as many as 8 people (50%). Patients' convenience before oral hygiene using coffee had an average score of 5 and after intervention a mean score of 6. There was an oral effect of hygiene with coffee in cancer patients on a comfort level with a P value 0.00.

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