

THE EFFECTIVENESS OF GUIDED IMAGERY ON DEPRESSION AND CORTISOL LEVELS IN COLON RECTAL CANCER PATIENTS

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ABSTRACT

Background: Depression in colon rectal cancer patients can inhibit the healing process, increasing the morbidity and mortality. Purpose of the study: This study aims to determine the effectiveness of guided imagery on the level of depression and cortisol. Guided imagery is a relaxation and comfort therapy that can provide a calm effect. Guided imagery is performed by guiding the patient in imagining a beautiful and comfortable place.

Research Method: This study uses experimental design. The study sample consist of 52 patients with colon rectal cancer who undergo the treatment. Depression levels and examination of cortisol levels are carried out before and after the intervention. Guided imagery is given to 26 people in the intervention group, and 26 people in the control group for the standard care. Data analysis using independent t-test and dependent t-test if the data is normally distributed. **Results:** The use of Guided Imagery therapy can reduce the average level of depression in CRC patients but does not show changes in cortisol levels in patient's body.

ARTICLE INFO

Keywords:

Depression; Cortisol levels; Colonrectal cancer; Guided imagery

EFEKTIVITAS CITRA TERPANDU PADA DEPRESI DAN KADAR KORTISOL PADA PASIEN KANKER USUS BESAR

ABSTRAK

Latar belakang: Depresi pada pasien kanker kolon rektal dapat menghambat proses penyembuhan, meningkatkan morbiditas dan mortalitas. Tujuan penelitian: Penelitian ini bertujuan untuk mengetahui efektivitas guided imagery terhadap tingkat depresi dan kortisol. Guided imagery merupakan salah satu terapi relaksasi dan kenyamanan yang dapat memberikan efek ketenangan. Guided imagery dilakukan dengan cara membimbing pasien dalam membayangkan suatu tempat yang indah dan nyaman. **Metode Penelitian:** Penelitian ini menggunakan desain eksperimen. Sampel penelitian terdiri dari 52 pasien kanker kolon rektum yang menjalani pengobatan. Tingkat depresi dan pemeriksaan kadar kortisol dilakukan sebelum dan sesudah intervensi. Guided imagery diberikan kepada 26 orang pada kelompok intervensi, dan 26 orang pada kelompok kontrol untuk perawatan standar. Analisis data menggunakan uji-t independent dan uji-t dependent jika data berdistribusi normal. **Hasil:** Penggunaan terapi Guided Imagery dapat menurunkan rata-rata tingkat depresi pada pasien CRC namun tidak menunjukkan perubahan kadar kortisol pada tubuh pasien.

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Kata kunci:

Depresi; Tingkat kortisol; Kanker kolorektal; Citra yang dipandu

Introduction

Colon Rectal Cancer (CRC) in 2030 is expected to increase by 60% based on data from the global burden of Colon Rectal Cancer (CRC). This increase is expected to be more than 2.2 million new cases and 1.1 million deaths. The increase in the incidence of CRC and its mortality will vary up to 10 times worldwide and will increase rapidly in many low and middle income countries (Arnold et al., 2016).

Based on a survey, there are more than 1.2 million patients are diagnosed with cancer each year and more than 600,000 patients with CRC have died. The data also shows the epidemiological studies of the incidence of CRC in Indonesia is around 30 cases per 100,000 men (Brenner et al., 2014) While in Indonesia itself, the high prevalence of diabetics makes Indonesia as one of the 10 top countries with Diabetes Mellitus. The research results conducted in several regional hospitals in eastern Indonesia shows that out of 249 people who have been registered at the outpatient endocrine clinic, it was found that the prevalence of diabetic foot injury risk factor was 55.4%. Meanwhile the prevalence of diabetic foot injury itself is 12% (Yusuf, et al., 2016)

Cancer attacks all types of age, where the highest number is recorded in the age group of 65 years and above, which is 5.0 per mile and the lowest prevalence is in children aged 1-4 years and 5-14 years, which is 0.1 per mile. It is seen that the prevalence increase is quite high in the age group of 25-34 years, 35-44 years and 45-54 years (Ministry of Health, 2015).

The Data derived from medical record (2016) in the the referral center hospital for Eastern Indonesia namely DR Wahidin Sudirohusodo Hospital shows that the number of CRC sufferers was recorded as many as 124 inpatients in 2013, 113 cases in 2014 and 240 cases in 2015. The medical record data of Hasanuddin University Teaching Hospital (2016) shows that the number of CRC cases in 2014 is as many as 19 cases for inpatients and 26 cases for outpatients with chemotherapy. Within 6 months, inpatients increased to 26 cases in 2015 and 19 cases outpatients with chemotherapy. Meanwhile, data from the Ibnu Sina Hospital shows the number of CRC occurrences in patients who were hospitalized in 2014 was 168 cases, and in early 2015 until October 2015 there was 57 cases. This 2015 data did not show for 1 (one) full year due to unfinished data report that was still being undertaken.

Depression is a physiological response in patients with CRC. The psychological response to depression experienced by CRC patients will affect the activation of the hypothalamic-pituitary-adrenal (HPA) axis. Activation of the hypothalamic-pituitary-adrenal axis will cause excessive release of cortisol. Decreased quality of life, morbidity, and mortality of CRC patients are increasing due to depression. For this reason, there is a need for new innovations that can be used as complementary therapies to reduce the psychological response of depression and physiological reminiscence of cortisol in the CRC patient. Guided imagery is a therapy for the mind by developing the power of imagination of the five senses of the patient. Guided imagery has a relaxing and calming effect on patients. Research conducted by Watanabe et al (2006) proved that guided imagery therapy was able to give a positive response to the physiological of the patient's body. Watanabe et al (2006) conducted a study of 138 respondents from communities who experienced stress. Watanabe et al (2006) looked at the success of guided imagery therapy by identifying physiological parameters with cortisol reduction in saliva and psychological parameters by decreasing multiple mood scale scores before and after therapy.

Methods

The design of this study is a quantitative research design with an experimental research design approach, with pre-test and post-test data collection. The sample in this study is calculated using the Frederer formula that resulted in 52 research samples. This samples are divided into two groups which are 26 samples for the intervention group and 26 samples for the control group

Results

This research is conducted from 01 November 2017 - 06 June 2018. The implementation of this research was at Dr. Wahidin Sudirohusodo. The number of samples in this study were 22 people consisting of 11 respondents in the intervention group and 11 respondents in the control group with a drop out of 15 respondents

a. Description of Characteristics of Respondents by Age

Table 1 Frequency Distribution Characteristics of Respondents by Age (n = 22)

Respondent's Characteristics	Intervention Group (n=11)			Control Group (n=11)		
	Mean	Maks	Min	Mean	Maks	Min
Age	52,45	80	34	55,27	65	45

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Based on Table 5.1, it is found that the average age of respondents in the intervention group is 52 years with a maximum age of 80 years and a minimum of 34 years. While in the control group the average age of respondents is 55 years with a maximum age of 65 years and a minimum of 45 years.

b. Frequency Distribution of Respondents based on gender and past education characteristics

Table 2 Frequency Distribution of Respondents Based on Gender, Education, Marital Status, Employment, Stoma Ownership Characteristics in 2018 (n=22)

Respondents Characteristics	Intervention (n=11)		Control (n=11)	
	F	%	F	%
Gender				
Male	6	54,5	7	63,6
Female	5	45,5	4	36,4
Past Education				
Not attending school	3	27,3	1	9,1
Elementary School	6	54,5	4	36,4
Junior High School	0	0	2	18,2
Senior High School	2	18,2	2	18,2
Diploma	0	0	2	18,2
Marital Status				
Single	1	9,1	2	18,2
Married	7	63,6	7	63,6
Widower	2	18,2	0	0
Widow	1	9,1	2	18,2
Job				
Not working	1	9,1	0	0
Housewife	4	36,4	3	27,3
Farmer	4	36,4	2	18,2
Laborer	0	0	1	9,1
Entrepreneur	2	18,2	3	27,3
Civil Servant	0	0	1	9,1
Retired Civil Servant	0	0	1	9,1
Stoma Ownership				

Yes	8	72,7	6	54,5
No	3	27,3	5	45,5
Total	11	100	11	100

Source: Primary Data

Based on table 5.2 it is found that most respondents were male in the intervention group, namely 6 people (54.5%), while in the control group, there are 7 people (63.6%). The majority of respondents took their last elementary school education in the intervention group which was 6 people (54.5%), while the control group was 4 people (36.4%). The average marriage status of respondents who is married in both the intervention group and the control group is 7 people (63.6%). The work of respondents in the intervention group is more as a housewife and farmers which were 4 people (36.4%), while in the control group, there were more housewife and self-employed which was 3 people (27.3%). Most of the respondents who had stoma is 8 people (72.7%) in the intervention group, while there is 6 people (54.4%) in control group.

c. The difference in mean depression scores of CRC patients before and after intervention in the intervention group

Table 3 Differences in Mean Depression Score of CRC Patients before and after intervention in the intervention group in 2018 (n = 22)

Variabel	N	Mean	± Std. Deviation	P-value
Pre-Depression Score	11	15,55	± 5,260	0,065
Post-Depression Score	11	5,73	± 3.771	

Based on Table 5.3 it is found that the mean in depression score before intervention was 15.55, while the depression score after the intervention shows a mean of 5.73 with a P-value of 0.064. Therefore, it can be concluded that there was a decrease in the average depression score before the intervention until after the intervention.

d. The difference in mean depression scores of CRC patients before and after intervention in the control group

Tabel 4 The difference in mean depression scores of CRC patients before and after intervention in the control group 2018 (n=22)

Variabel	N	Mean	± Std. Deviation	P-value
Pre-Depression Score	11	0	± 0	1,000
Post-Depression Score	11	0	± 0	

Based on table 5.4, it was found that the depression score before and after the intervention in the control group had the same mean of 0 with a P-value of 1,000. Therefore, it can be concluded that there is no difference in mean depression scores before and after intervention in the control group.

e. Differences in mean cortisol levels of CRC patients before and after intervention in the intervention group

Table 5 Differences in mean cortisol levels of CRC patients before and after intervention in the intervention group (n = 11)

Variabel	N	MeanRank	p value
Negative Rank (Post<Pre)	7	6,57	0,248
Positive Rank (Post>Pre)	4	5	

Ties (Post=Pre)	0
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Source: Primary Data (2018)

The table above shows the mean difference in cortisol level of CRC patients. A negative rank (post > pre) is found as many as 7 people with an average value of 6.57 and a positive rank (post > pre) is found as many as 4 people with an average value of 5 and a p value of 0.248. This means that there is no difference between the average cortisol level of CRC patients before and after the intervention.

f. Differences in mean cortisol levels of CRC patients before and after intervention in the control group

Table 6 Difference in mean cortisol levels of CRC patients before and after intervention in the control group (n = 11)

Variabel	N	MeanRank	p value
Negative Rank (Post<Pre)	4	8,00	0,929
Positive Rank (Post>Pre)	7	4,86	
Ties (Post=Pre)	0		

The table above shows the mean difference in cortisol level of CRC patients. A negative rank (post > pre) is found as many as 4 people with an average value of 8.0 and a positive rank (post > pre) is found as many as 7 people with an average value of 4.86 with the p value of 0.929. This means that there is no difference between the average cortisol levels of CRC patients before and after the intervention.

g. Differences in depression scores of CRC patients in the intervention group and the control group

Table 7 Differences in depression scores for CRC patients in the intervention group and the control group (n = 11)

Variable	N	Mean(±SD)	P Value
Depression Score			
Control	11	11,45(4,480)	0,004
Intervention	11	5,73(3,771)	
Total	22		

The table above shows the mean difference in cortisol level of CRC patients. As many as 11 people with an average score of depression (control) shows the average value of 11.454. and as many as 11 people with an average score of depression (intervention) with an average value of 5.73 with the p value of 0.004. This means that there is a difference between the difference in depression scores of CRC patients in the intervention group and the control group.

h. The difference in the level of depression between CRC patients in the intervention group and the Control group

Table 8 Differences in the depression scores for CRC patients in the intervention group and the control group (n = 11)

Variabel	N	Mean(±SD)	P Value
Kadar kortisol			
Kontrol	11	0,231(0,130)	0,271
Intervensi	11	0,332(0,264)	
Total	22		

Source: Primary Data

The table above shows the difference in depression scores of CRC patients. There is as many as 11 people with an average score of depression (control group) with an average value of 0.231 and as many as 11 people with an average score of depression (intervention group) with an average value of 0.332 with the p value of 0.271. This means that there is no difference in depression scores of CRC patients in the intervention group and the control group

Discussion

The findings of this study revealed that the average level of depression in respondents who experienced CRC and who received intervention guided imagery had a difference in the results in pre and post interventions. The score is decreased significantly. Respondents who receives treatment are given the guided imagery therapy for 10 minutes. This result is in line with research conducted by Foji, Tadayonfar, Mohsenpour, & Rakhsani (2015) which revealed that the average score of anxiety with Trait anxiety in the guided imagery group decreased significantly while the control group did not experience this decrease. Jallo, Salye, Ruiz, & French (2015) also show that the use of Guided Imagery techniques can reduce stress experienced by pregnant women in African-American countries, where respondents feel Guide Imagery contributes to decrease the negative emotional and physical responses that are generally associated with stress response. Another study conducted by Mohammad Afshar, Abbas Mohsenzadeh, Hamidreza Gilasi, Hamidreza Sadeghi-Gandomani (2018) revealed that the use of guided imagery therapy can reduce the average level of anxiety and improve sleep quality in hemodialysis patients.

The impact of stress in human is closely related between neurons and somatic cells namely peptide hormone, corticotrophin-releasing hormone (CRH) and argini-vassopressin (APV). These neurons in the hypothalamus when stimulated by environmental stressors, will release CRH and AVP. CRH is a short polypeptide, transported to the anterior pituitary which stimulates corticotrophin release (Rhen, Cidlowski, 2005). This corticotrophin hormone will stimulate corticosteroid production including cortisol which is the main hormone that directly impact on stress response (Sapolsky, Romero, Munck, 2000). The research results conducted by Edy Mustofa (2012) show that physical stress and psychological chronic can increase cortisol levels in the blood. This is in line with research conducted by Selamat Budijitno (2015) suggesting that there is a relationship between the level of depression and cortisol levels, which in assessing the level of depression, the cortisol levels can be used.

Cortisol levels in this study shows that there were no differences in cortisol levels in CRC patients before and after the intervention. These results are not in line with the research conducted by Fuadiyah, Rizky Ainun and Aristiati, Kun and Kuntjoro, (2016) which shows that the use of guided imagery techniques and Music (GIM) in post partum blues mothers which has decreased after therapy in Semarang city. The respondents in the study feel a change in psychic response in the form of stress that has been experienced. Another study conducted by Nurinasari, Respati, Sulistyowati (2015) shows that there were significant differences in serum cortisol levels in the standard therapy group with reality psychotherapy interventions. The provision of reality psychotherapy is effective in reducing patient serum cortisol levels in patients with advanced cervical cancer.

Conclusion

The use of Guided Imagery therapy can reduce the average level of depression in CRC patients but does not show changes in cortisol levels in patient's

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