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NURSING INTERVENTION GIVING WARM COMPRESS TO ENLARGE VEINS AREAS WITH ABDOMEN WALLS TO DECREASE TEMPERATURE OF HYPERTHERMIC PATIENTS

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Abstrak

Organ intraabdomen merupakan reseptor yang lebih sensitif terhadap suhu, dingin. Sedangkan area vena besar efektif karena adanya proses vasodilatasi dengan pemberian kompres hangat untuk menurunkan suhu tubuh pada permukaan tubuh. Tujuan penelitian ini adalah untuk mengetahui efektivitas pemberian kompres hangat pada dinding perut (abdomen) dan area vena besar (aksila) terhadap penurunan suhu tubuh pada pasien demam. Desain penelitian ini adalah Quast-Experiment, Design dengan pendekatan Nonequivalent Control Group Design. Populasi penelitian ini adalah seluruh penderita demam sebanyak 26 responden. Sampel diambil dengan teknik konsekutif sampling sebanyak 20 pasien. Variabel penelitiannya adalah kompres hangat pada ketiak dan perut dan variabel bebasnya adalah penurunan suhu tubuh. Data dikumpulkan dengan mengamati suhu tubuh dan dianalisis dengan menggunakan uji T. Hasil penelitian menunjukkan bahwa kompres perut lebih efektif karena jumlah pasien yang tidak mengalami penurunan sebanyak 1 responden, sedangkan kompresi aksila sebanyak 2 responden. Hasil uji normalitas data menunjukkan bahwa data tidak berdistribusi normal sehingga uji hipotesis menggunakan uji T dan hasilnya menunjukkan data p = 0,000, = 0,05 sehingga p < a berarti Ho ditolak Artinya perbedaan penurunan suhu tubuh antara pemberian kompres aksila dan kompres perut tidak terlalu signifikan. dan tidak jauh berbeda.

Kata Kunci : Kompres Hangat, Demam, Suhu Tubuh

Abstract

Intra-abdominal organs are receptors that are more sensitive to temperature, cold. While the large vein area is effective because of the vasodilation process by giving warm compresses to reduce body temperature on the body surface. The purpose of this study was to determine the effectiveness of giving warm compresses to the abdominal wall (abdomen) and large vein (axilla) area to decrease the body temperature in fever patients. The design of this research is Quast-Experiment, Design with Nonequivalent Control Group Design approach. The population of this study was all patients with fever as many as 26 respondents. Samples were taken by consecutive sampling technique as many as 20 patients. The research variable is a warm compress in the axilla and abdomen and the independent variable is a decrease in body temperature. Data were collected by observing body temperature and analyzed by using the T-test. The results showed that abdominal compresses were more effective because the number of patients who did not experience a decrease was 1 respondent, while the axilla compression had 2 respondents. The results of the normality test of the data showed that the data were not normally distributed so that the hypothesis testing used the T-test and the results showed that the data was p = 0.000, = 0.05 so that p < a means Ho is rejected, meaning that the difference in body temperature decrease between giving axillary compresses and abdominal compresses is not too significant. and not that much different.

Keywords: Warm Compress, Fever, Body Temperature

1. INTRODUCTION

Fever is a sign of a health problem and is only a complaint and not a diagnosis. As a complaint, fever is the second most common complaint after pain, so it is very important to know more about fever (Ganong, 2017). Symptoms that often appear

in patients with fever are an increase in body temperature. High body temperature can be dangerous if the axillary temperature is above 40 o C. An increase in body temperature that lasts a long time will cause several permanent brain damage and can be fatal or death (Ganong, 2017). Patients with increased body temperature are increasing so that appropriate technique are needed to reduce body temperature to be able to assist in decreasing the patient's body temperature.

Media that is often used by health workers in decreasing body temperature is using warm compresses in the large vein (axillary) area, this media is often used because compressing the large vein (axillary) area is considered quite effective in lowering body temperature. (Set.C. Guyton, 2017). Internal body temperature receptors are also found in certain parts of the body, namely the abdominal wall organs. Recent researchers have done that one way that can be used to reduce body temperature is to apply compresses to the abdominal wall area. This study was conducted by Sofyan Lubis (2009), concluding that compressing the abdominal wall area can help the process of decreasing the patient's body temperature. Many compress methods are carried out by nurses, one of which is by applying warm compresses to the large vein area, neck, and forehead area, but whether or not it is effective in helping the process of decreasing the patient's body temperature, it is still necessary to conduct an assessment so that appropriate treatment actions can be obtained that can help the healing rate. patient.

WHO data in 2019 estimates that there are around 17 million cases of fever worldwide with an incidence of 600,000 deaths each year. In Labuan Baji Hospital, Makassar, the number of fever sufferers since 2012 was 165 people, in 2013 it increased to 178 people and in 2014 in January-March, fever sufferers had reached 70 people, where the body temperature increased in fever patients reached 54 people (73 %) and 16 people (27%) did not experience an increase in body temperature. The cause of fever does not depend on climate, but many in several countries with tropical climates (Sarwono, 2015). One of the causes of fever is abnormalities in the brain itself or by toxic substances that affect the body's temperature regulation center. The mechanism for the occurrence of fever begins with the body's inability to maintain the rate of expulsion of excess heat, which results in an abnormal increase in body temperature (Potter & Perry, 2015). As for the impact, if the fever is not treated immediately, there can be a disturbance of consciousness and complications arise that can worsen the patient's condition (Mansjoer. A, 2010) In fever patients, the compressive temperature of the large vein/armpit area will affect the dermal arteriolar receptors by giving signals to the hypothalamus through the cell body. in the substantia nigra and projects axons out of the ventral root. Past the white and gray comunican ramus. In the hypothalamus, the signal will be received by the anterior hypothalamus and the preoptic area that regulates the setpoint, where the anterior hypothalamus will respond by vasodilation. While compressing the abdominal wall area will provide stimulation from within the skin surface on the abdominal muscles, intra-abdominal muscles, and spinal organs which are temperature receptors. Then the signal is conveyed to the hypothalamus via the ventral primary ramus and the ventral root. In the hypothalamus, signals from the same muscle will affect the anterior hypothalamus which regulates the setpoint and will provide a sweating response so that there can be a decrease in body temperature. Giving compresses to the abdominal wall area is a sensitive receptor. The content of fat tissue in the abdominal area greatly affects the heat conduction process from within the skin surface (Artur C Gayton 2007). Heat-sensitive receptors in the hypothalamus are stimulated, the effector system issues a signal that starts sweating (Arwan, 2014). The alternative intervention of giving compresses in lowering body temperature is very important, therefore the role of nurses is needed because nurses have more

opportunities to help heal patients. By doing this research, it is hoped that compresses on the abdominal wall area are more effective than the large veins that have been done so far.

2. MATERIAL METHOD

This research is quasi-experimental design research (Noneequivalent Control Group Design). In this design, both the experimental group and the control group are compared, the groups are selected and placed without going through random. The two existing groups were given a pre-test, then given treatment, and finally given a post-test. Where in this research design there is a group given treatment and then the results are observed (treatment is the independent variable and the result is the dependent variable.

Subject	Pre-test	Intervention	Post-test
R	-	HE	O
R	-	IB	O

The population of this study was all clients with an increase in body temperature (fever) in the Gunung Jati room of RSI Sakinah Mojokerto an average of 26 patients per month. The sample of this study were patients who were treated in the Gunung Jati room for 3 weeks. In this study, the samples taken were those who met the following criteria: all clients with fever (temperature above 38˚c), clients who were required to rest, did not experience moderate or severe dehydration, and were willing to be respondents. The sampling technique used in this study is consecutive sampling where the researcher determines the research period until the sample is met according to the inclusion criteria. The variables in this study were divided into two, namely independent and dependent variables. and abdominal wall area while the dependent variable in this study was a decrease in body temperature in patients with fever. Data collection and data analysis are done by editing, coding, scoring, and tabulating, then statistical analysis is carried out with the following assumptions:

The data obtained were processed by tabulating data, following the research objectives, especially general data, respondent characteristics, and data related to the dependent variable, then the data on the dependent variable was analyzed first with the data normality test, and because the data obtained did not show a normal distribution of data, the researcher using the T-test. All statistical data processing was carried out computerized using the SPSS program with the assumption that if < 0.05 then H1 was accepted, meaning that there was a difference in the results of giving compresses in the large vein/armpit area and abdominal wall.

In this section contains the research methods carried out

3. RESULTS AND DISCUSSION

General data

Table 1 Frequency Distribution of Respondents by Age

No	Age	Frequency	%
1	17- 21	8	40
2	22-26	9	45
3	27-35	3	15
4	36-45	0	0
Amount		20	100

Based on the table above shows that almost half of the respondents aged 22-26 years as many as 9 respondents (45%)

Table 2 Distribution of Respondents Frequency Based on Education

No	Age	Frequency	%
1	SD	0	0
2	junior high	4	20
3	school	13	65
4	high school D3/PT	3	15
Amount		20	100

Based on the table above, it can be seen that most of the respondents have a high school

education background as many as 13 respondents (65%).

Table 3. Frequency Distribution of Respondents by Occupation

No	Age	Frequency	%
1	Work	12	60
2	Does not work	8	40
	Amount	20	100

Based on the table above, it can be seen that the majority of respondents have jobs as many as 12 respondents (60%).

Table 4 Distribution of Respondents Frequency by Gender

No	Gender	Frequency	%
1	Man	13	65
2	Woman	7	35
	Amount	20	100

Based on the table above, it can be seen that most of the respondents are male as many as 13 respondents (65%)

Special Data

Table 5 Distribution of Respondents Frequency Based on body temperature after being given abdominal compress

No	body temperature	Final body temperature	Difference
1	39.6	39.6	0
2	38.2	38	0.2
3	38.1	37	1.1
4	36.7	36	0.7
5	37.3	36	1.3
6	39.6	39	0.6
7	38.5	37	1.5
8	37.2	36	1.2
9	38.2	37	1.2
10	38.3	37.6	0.7

Based on the table above obtained data that only. there was 1 respondent who did not experience a decrease in body temperature after being given abdominal compresses, while the others experienced a significant decrease in body temperature that occurred between values of 0.2-1.5 degrees.

Table 6 Distribution of Respondents Frequency Based on body temperature after being given axillary compress

No	body temperature	Final body temperature	Difference
1	38.5	37.6	0.9
2	39	38	1
3	36.9	36	0.9
4	38.3	37.2	1.1
5	38.3	38.3	0
6	39.6	39	0.6
7	40	39.8	0.2
8	39.1	38	1.1
9	38	38	0
10	40	39	1

Based on the table above, the data obtained are 2 respondents who have a fixed body temperature or no decrease and the average decrease that occurs is between values of 0.2-1.1 degrees.

Differences in body temperature between axillary compresses and abdominal compresses

Paired Samples Test

		Paired Differences					T	df	Sig. (2-tailed)
		mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pairs 1	Body Temperature 1 - Body Temperature 2	.5900	.5108	.1142	.3509	.8291	5.165	19	.000

T-test results show data obtained $\rho = 0.000$, $\alpha = 0.05$ so $\rho < \alpha$ means that H_0 is rejected and H_1 accepted means that there is a difference between giving a decrease in body temperature axilla compress and compress the abdomen is not too significant and not too much different, would but the use of abdominal compresses

lowers body temperature more in some patients with fever.

DISCUSSION

Decrease in body temperature after being given a compress through the abdominal wall

Based on table 5 above, the data after giving abdominal compresses showed that there was only 1 respondent who did not experience a decrease in body temperature after being given an abdominal compress, while the others experienced a significant decrease in body temperature.

The abdominal wall is formed by successive layers from superficial to deep consisting of skin, subcutaneous tissue, muscle and fascia, extraperitoneal tissue, and peritoneum. Therefore, the administration of compresses to the intra-abdominal organ area is a more sensitive receptor. The content of fatty tissue in the abdominal area greatly affects the heat conduction process from within the skin surface (Guyton 2017).

The role of the skin on the abdominal wall to regulate temperature regulation includes body insulation, vasoconstriction (which affects the amount of blood flow and heat loss to the skin), and temperature sensation. Skin, tissue, subcutaneous, and fat store heat in the body. When blood flow between the layers of the skin is reduced, the skin itself is the best insulator. Individuals with more body fat have more natural insulation than lean and muscular individuals. The way the skin controls body temperature is the same as the way a car radiator controls engine temperature. The car engine performs good heat control. Water is pumped through the engine system to collect heat and carry it to the radiator, while the fan transfers heat from the water to the degree of vasoconstriction determining the amount of blood flow and heat loss to the skin. When the core temperature is too high, the hypothalamus inhibits vasoconstriction. As a result, blood vessels dilate, and more vessels reaching the skin surface dilate, and more vessels reach the skin surface. On hot and humid days the blood vessels in the hands are dilated and easy to see. Conversely, when the core temperature becomes too low, the hypothalamus causes vasoconstriction and blood flow to the skin is reduced. Based on the education of the respondents, the data in table 4.2 is obtained, namely, most of the respondents have a high school education background as many as 13 respondents (65%). Education means the guidance given by someone to others on something so that they can understand. It is undeniable that the higher a person's education, the easier it is for them to receive information, and in the end, the more knowledge they have. Conversely, if someone has a low level of education, it will hinder the development of a person's attitude towards receiving information and values that have just been introduced (Mubarak, 2017). The results of this study indicate that with the educational background of the respondents including secondary education so that they can more easily understand the information received about how to lower body temperature, and. nurses only provide information and instructions on how to do

One of the ways to reduce body temperature is by using abdominal compresses and respondents can understand the information so that they can lower their body temperature better and faster.

Decrease body temperature with axillary compress

The results of the study on 20 patients with fever obtained data based on table 6 above, it was found that 2 respondents had a constant body temperature or no decrease and the average decrease occurred between values of 0.2-1.1 degrees.

Warm compresses are a method of using local warm temperatures that can cause several physiological effects. Cold compress is a method of applying local low temperature which can cause several physiological effects. The application of cold compresses is to reduce blood flow to a part and reduce bleeding and edema. It is thought that cold therapy produces an analgesic effect by slowing the speed of nerve conduction so that

fewer pain impulses reach the brain (Angelina, 2013).

Giving compresses to the neck, armpits, and groin areas has a good effect on lowering body temperature because in those places there are large blood vessels that will help drain blood. Giving warm compresses and plain water compresses in the axillary area is more effective because in the axillary area there are many large blood vessels and there are many apocrine sweat glands (Corwin, 2019). Following radiation theory, peripheral vasodilation also increases blood flow to the skin to expand the spread of increased body temperature outward. With warm compresses and plain water compresses on areas that have a lot of vascularity, it will expand the area that is experiencing vasodilation. Strong vasodilation in the skin, will allow the acceleration of heat transfer from the body to the skin, will allow the acceleration of heat transfer from the body to the skin (Tamsuri, 2017).

The results of this study indicate that giving warm compresses to the axillary area of the body provides respondents with compensatory vasodilation of blood vessels because with this response the body will release heat through the skin or an evaporation process occurs so that body temperature will gradually decrease.

Based on the age of the respondents, the data in table 1 shows that almost half of the respondents aged 22-26 years were 9 respondents (45%). According to Mubarak (2017), one of the factors that affect a person's knowledge is age, where increasing a person's age there will be changes in physical and psychological (mental) aspects. In general, there are four categories of physical growth, first, change in size, second, change in proportion, third, loss of old characteristics, fourth, emergence of new characteristics. This occurs due to the maturation of organ function. In the psychological or mental aspect, a person's level of thinking is getting more mature and mature. The results of this study indicate that the age of the respondents is young adults so that they easily understand information about how to manage body temperature reduction properly. In addition, respondents also have sufficient experience about lowering body temperature so that after being given information by the nurse the respondent can manage body temperature well, one of which is with warm axillary compresses.

Giving warm compresses to the axilla and abdominal wall to decrease body temperature

The test results Mann Whitney shows the data obtained □□= 0.000, □□= 0.05 so □□< □□□means that H 0 is rejected and H 1 accepted it means the difference between giving a decrease in body temperature axilla compress and compressing the abdomen is not too significant and not too much different, would but the use of abdominal compresses lowers body temperature more in some patients with fever. The results of this study indicate that by giving warm compresses to the axillary area and abdominal wall there is a decrease in body temperature but there is no difference in the acceleration of the decrease in body temperature because the number of patients who experience a decrease in body temperature is almost the same between giving axillary compresses and abdominal compresses.

According to Corwin (2019), the mechanism for regulating body temperature is that most of the sensory or sensory traps are in the skin. The skin responds better to cold than to heat. The skin senses panel detects cold more efficiently than heat. To sense changes in body temperature and the surrounding temperature, thermoreceptors are placed mostly in the skin and brain, where thermosensitive neurons in the Preoptic – Anterior Hypothalamus (PO-AH) sense the temperature in the blood that passes through areas where there are many blood vessels. Central to this information and that of various peripheral receptors, the two nerves meeting in the anterior and posterior hypothalamus coordinate activities required to balance body temperature within a narrow range. In

response to an increase in body temperature, neurons in the hypothalamus carry out a series of processes that result in heat loss, including peripheral vasodilation and sweating. A decrease in ambient temperature requires a series of events including peripheral vasoconstriction, piloerection, increased metabolism, and shivering to maintain heat.

The results of this study indicate that giving axillary and abdominal compresses both have almost the same effectiveness in lowering the body temperature of typhoid patients because in the axillary area the body temperature is lowered through the evaporation process in the presence of vasodilation of blood vessels, while in the abdominal area the decrease in body temperature is done by stimulating temperature-regulating nerve receptor area through the spinal cord or spinal nerves. However, from the tabulation of the data, it was shown that abdominal compresses were more effective because the number of patients who experienced a decrease was 9 respondents while the axial compress was 8 respondents. The results of this study indicate that abdominal compresses are more effective because the decrease in body temperature is faster than axillary compresses, so it can be stated that abdominal compresses are more effective than axillary compresses.

4. CONCLUSIONS AND SUGGESTIONS

1. The condition of the respondent's body temperature after being given abdominal compresses obtained data that there were only 2 respondents who did not experience a decrease in body temperature after being given an abdominal compress, while the others experienced a significant decrease in body temperature.
2. The condition of the respondent's temperature after being given axillary compresses obtained data 2 respondents have a fixed body temperature or no decrease and the average decrease that occurs is between values of 0.2-1.1 degrees.
3. There is a difference, there is a difference in the effectiveness of warm compresses for the abdominal wall area and the large vein/armpit area.

Suggestion

1. For Nurse

The results of this study are expected to be used as standard operating procedures as an independent intervention in developing nursing plans for patients with fever or fever

2. For the head of hospital nursing

It is hoped that hospital institutions can be used as hospital procedures in carrying out nursing actions in reducing body temperature.

3. For Further Researchers

It is hoped that the next researcher can use the results of this study as initial data or also use other materials such as factors that affect the decrease in body temperature or also data collection is carried out in more detail, especially in monitoring the compression method so that research results can be more helpful in developing science and nursing technology

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