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The Effect of Massage Using Virgin Coconut Oil for Risk Prevention on Immobility Pressure in ICU Patient

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Abstract

This research aims to assign the effect of massage effleurage by using Virgin Coconut Oil (VCO) to prevent the risk of pressure sores on patients' immobility in the Intensive Care Unit (ICU) of Abepura Regional General Hospital in Papua Province. This study uses a quasi-experimental design with a post-test. The sample is the total population, i.e. all patients at risk of pressure sores in the Abepura Regional General Hospital Intensive Care Unit. A sample of 20 peoples was divided into two groups, and there are intervention and control. The intervention group received treatment for pressure sores according to the Standard Operating Procedures (SOP) of massage effleurage with VCO. In contrast, the control group only received pressure sores treatment according to the SOP of the room. Data were analyzed using Spearman's rho nonparametric statistical test. The results showed that the characteristics of respondents in the most age intervention group were <60 years (62.5%), women (75.0%), had a high risk (60.0%) with the ideal Body Mass Index (BMI) (57.1 %). Whereas in the most controlled age group was> 60 years (58.3%), men (66.7%), had a high risk (40.0%) with a fatter BMI (66.7%). The effect of standard steps without effleurage massage is that there are samples which have pressure sores (50.0%), and some do not have pressure sores (50.0%). The effect of standard actions with effleurage massage using VCO shows no pressure injury (100%). Rank Spearman correlation test results show that the value of sig (1-tailed) is 0.008, the results of calculations <0.05, so it can be concluded that there is a significant relationship between effleurage massage using Virgin Coconut Oil to prevent the risk of pressure sores.

Keywords: massage, virgin coconut oil, risk prevention, immobility pressure

1. Introduction

Pressure sores are local injuries to the skin or tissue under the skin caused by contact with sliding or friction forces, prolonged pressure [1]. The prevalence of pressure injuries that occurred in the ICU and other countries and continents was 49% in Europe, ranging from 8.3% to 22.9% in Western Europe, 22% in North America, and 29% in Jordan [2]. The incidence of pressure sores in America, Canada, and the UK is 5% to 32%. In Korea, especially in the ICU, the incidence of pressure sores increases from 10% to 45%. In Indonesia, the incidence of pressure sores in patients treated in ICU reaches 33%. This number is high enough when compared to the incidence of pressure sores in Southeast Asia, which ranges from 2.1% to 31.3%. Pressure sores occur because of the lack of monitoring and care of the skin of the depressed part, thus resulting in the occurrence of impaired skin integrity in the depressed part. The factors that can increase the risk of pressure sores are gender, age, can not walk alone, and are in the ICU [3]. Nurses have an essential role in preventing the occurrence of pressure sores. The acti[illegible] don[illegible] mobilization. Immobilization can stim[illegible] and improve nerve re[illegible]culation [illegible] push b[illegible]k the parts that

are experiencing weakness [4]. Also, there are actions to tilt the body's position to the right and left, which aims to reduce the pressure on the skin area but does not maintain skin vascularization. Another action that can be done is a massage technique.

Massage therapy is a healing effort that is effective, safe, without side effects, and offers pain relief [5], as for some massage techniques, namely petrissage (lifting, wringing of soft tissues in a kneading motion), friction (penetrating pressure applied through the fingertips), tapotement (strike the tissues at a rapid rate), vibration, and effleurage (a gliding or sliding over the skin) [6]. The results revealed that massage therapy is a method used to facilitate blood circulation and help maintain skin vascularization. One massage therapy that can be used is effleurage massage, which is a once or twice a day rubbing technique effective in preventing the development of pressure sores. Massage is carried out using a lubricant, which generally uses a moisturizer or lotion [7]. The ideal moisturizer that can soften and protect the skin from damage consists of various vegetable oils, animals and synthesis that can flex the layers of dry and rough skin and reduce the evaporation of water and skin cells that contain coconut oil (Virgin Coconut Oil) [8]. Virgin Coconut Oil (VCO) is a processed coconut product that is safe for consumption by the community and has high economic value. VCO is produced without going through the process of purification, bleaching, deodorizing, and does not change the nature of the oil [9]. The results of previous studies conducted at St. Anthony of Darma Bakti Kasih Surakarta Nursing Home shows that by doing massage on the elderly using VCO, pressure sores become dry, wound colours become brown, wound structures become smooth, and tissue repair [10].

The observations were made by the author during the author's work in the Abepura Regional General Hospital's Intensive Care Unit (ICU) found that almost all patients treated were patients in a state of immobility. The length of stay of patients in the ICU varies from a week to three months of treatment. Disease conditions experienced are bone injuries, diseases related to nerves, diseases related to the heart and breathing, and critical illnesses that require rest such as sepsis. Based on the data obtained by the author through the medical records of Abepura Regional General Hospital from January to March 2019, there were 12 patients at risk of grade II pressure sores and 6 patients including pressure injuries (Abepura Regional Medical Record Data, 2019). Treatment performed on patients with immobility in the Abepura Hospital to prevent pressure sores is to reposition by changing the right-tilted left tilt position (once every two hours). Therefore, the authors are interested in treating patients with immobility by doing massage to prevent pressure sores. This study aims to assign the effect of massage effleurage by using Virgin Coconut Oil to prevent the risk of pressure sores on immobility patients in the Intensive Care Unit of Abepura Regional General Hospital in Papua Province.

2. Methodology

This research was conducted in the Intensive Care Unit of Abepura Regional General Hospital in Papua Province. The type of research is a quasi-experimental with post-test only. In this study, there are two groups, namely the intervention (treatment) and the control group. The treatment group was given the treatment in the form of standard preventive care and effleurage massage using VCO with 15 minutes of massage time two times a day morning and evening in the back, scapula, sacrum areas while the control group received only standard preventative care. Data collection techniques used two parts, namely section A sheet consisting of the characteristics of respondents including age, gender, risk categories that refer to the Branden and anthropometric scale values (IMT) and section B sheet to collect observational data. The material used by researchers was Virgin Coconut Oil from PT SR12 Herbal Perkasa Bogor, West Java. The Data analysis performs by univariate analysis to produce distribution and presentation of each variable, including age,

sex, risk category, and anthropometry (BMI). Bivariate analysis was performed using Spearman's rho nonparametric statistical test. The sample in this study was a total population of 20 patients taken by purposive sampling, and the determination of samples included in the intervention group or the control group was carried out by simple random sampling, which was divided into 10 samples for the intervention group and 10 samples for the control group.

3. Results and Discussion

3.1. Respondents Profile

Table 1 shows that of the 20 immobility patients in the ICU of Abepura Regional General Hospital in the intervention group, the age of most respondents was < 60 years (62.5%), female (75.0%), high risk of pressure sores (60.0%) and ideal Body Mass Index (BMI) (57.1%). While in the control group, the age of most respondents was > 60 years (58.3%), male (66.7%), high risk of pressure sores (40.0%), and fatter BMI (66.7%).

Table 1. The Frequency Distribution Characteristics of Immobility Patients of Abepura Hospital ICU in 2019 (n = 20)

Characteristic	Intervention Group		Control Group		Total	
	F	%	F	%	F	%
Age						
< 60 year old	5	62.5	3	37.5	8	100
> 60 year old	5	41.7	7	58.3	12	100
Gender						
Male	4	33.3	8	66.7	12	100
Female	6	75.0	2	25.0	8	100
Risk Category						
Moderate Risk	0	0	4	100	4	100
High Risk	9	60.0	6	40.0	15	100
Very High Risk	1	100	0	0.0	1	100
Anthropometric (IMT)						
Normal/Ideal 18.5-24.9 kg/m	8	57.1	6	42.9	14	100
Fatter 25-29.9 kg/m	2	33.3	4	66.7	6	100

3.2. The Effect of Preventing Risk of Pressure Wounds on Immobility Patients Who Take Standard Measures Without Effleurage Massage

Table 2 shows that of the 10 immobility patients in the ICU of Abepura Regional General Hospital, in the control group who performed standard measures without effleurage massage, some had pressure sores (50.0%), and some had no pressure sores (50.0%).

Table 2. Frequency Distribution of Standard Measures Without Effluerange Massage For Immobility Patients of Abepura Hospital ICU in 2019 (n = 10)

Standard Action With Massage Effluerange	Control Group	
	F	%
Suffered a pressure wound	5	50.0
Not suffered a pressure wound	5	50.0
Total	10	100

3.3. The Effect of Effluerange Massage Using VCO on the Prevention of the Risk of Pressure Wounds in Immobility Patients of Abepura Regional General Hospital ICU in Papua Province

Table 3 shows that the 10 immobility patients (intervention groups) of Abepura Regional General Hospital ICU who performed standard actions and effleurage massage using VCO, no pressure sores were found (100%). In a hypothesis test looking for the effect of effleurage massage using VCO on the prevention of the risk of pressure sores in immobility patients at Abepura Regional General Hospital ICU, researchers used Spearman's rho nonparametric statistical test. From the Spearmen Rank correlation test it is known that the value of sig (1-tailed) is 0.008, <α 0.05 with significance level 95%, it can be concluded that there is a significant correlation between effleurage massage using Virgin Coconut Oil to prevent the risk of pressure sores on Immobility patients in Abepura Regional General Hospital ICU.

Table 3. Frequency Distribution of Standard Measures and Effluerange Massage Using VCO on Patients Immobility of Abepura Hospital ICU in 2019 (n = 10)

Standard Action + Massage Effluerange with VCO	Intervention Group	
	F	%
Suffered a pressure wound	0	0
Not suffered a pressure wound	10	100
Total	10	100

3.4. The Effect of Effluerange Massage Using VCO on the Prevention of the Risk of Pressure Wounds in Immobility Patients of Abepura Regional General Hospital ICU in Papua Province

3.4.1. Age

The results showed that in the intervention group, it was known that the age of most respondents was < 60 years (62.5%). These results are in line with previous research on mobilization and emergence of pressure sores in bed rest patients in Jakarta Hospital which in the characteristics of respondents indicated that the age distribution of most respondents was > 60 years [11]. The World Health Organization (WHO) believes that individuals after 30 years will experience a deterioration of skin tissue caused by the ageing process. Ageing causes reduced the elasticity of skin cells due to decreased vascularization fluid in the skin and reduced-fat glands, which further reduces skin elasticity. Whereas in the age control group, most respondents were > 60 years (58.3%). Old age has a risk of pressure sores because the skin and tissues will change with ageing and the prevalence of pressure sores is 40% where at the age of 60-80 years [12]. According to the researchers' assumptions, the characteristics of respondents aged > 60 years in the control group were more than in the intervention group whose age was < 60 years because of the ageing factor. The ageing process that takes place after 45 years will result in physiological and biochemical changes in each cell so that it can run into a decrease in cell quality and productivity of cells. Moreover, the majority of people over > 45 years of age have a reduced quality of life or productivity level, so that old age can make it harder for people in the group to do their activities if compared to young age. In this study, all respondents were diagnosed with diabetes mellitus, CKB, stroke, and hypertension. The duration of treatment carried out in the ICU, nerve room, and disease room in an average of more than a week depending on the condition of the patient, this is what often causes the risk of pressure sores.

3.4.2. Gender

The results showed that in the intervention group the majority of patients immobility who were treated in the Abepura Hospital ICU were female (75.0%), while in the majority control group male were (66.7%). From the results of the percentage and the total of respondents, the comparison is not too significant and almost balanced. This study contrasts with previous studies which showed that the number of women was 66.7% while men were 33.3% [13]. Women will run into a higher risk of pressure sores that are faster than men, due to decreased estrogen at menopause when viewed from a hormonal point of view [14], [15]. Gender is not meant as a factor that causes the risk of pressure sores because there is limited evidence [16]. This is due to one of the factors that influence the risk of pressure sores is immobility, friction, and a decrease in the level of patient activity.

3.4.3. Risk category

Based on the distribution table, Branden's score in the intervention group had a high risk of pressure injuries 60.0% and the control group had a high risk of pressure injuries 40.0%. Previous research on the use of local VCO to treat pressure sores found that there was a 60% control group that experienced the high-pressure wound category [17]. According to the researchers' assumptions, the high-risk category that is found in patients in the Abepura Hospital ICU is likely to occur because 80% are patients with impaired consciousness, all of whom have total bed rest. Pressure sores are a severe problem that often occurs in patients with impaired mobility so that all activities must be assisted and carried out in bed [18]. The condition of prolonged bed rest, especially for patients with muscle damage could cause pressure sores [19]. In this study, the respondents suffer from mobility disorders caused by the disease they have. Mobilization was one of the factors that had a contribution to the intensity of the pressure that caused the occurrence of pressure sores [18].

3.4.4. Anthropometry (BMI)

The results showed that the BMI of respondents in the intervention group mostly was ideal (57.1%). In previous studies of the relationship between albumin levels and BMI with the incidence of pressure sores in patients who did not move at the General Hospital Dr Moewardi, the results showed that respondents with an ideal BMI were 37 or 35.6% [20]. The results of the majority of BMI control groups were fatter (66.7%). There is a relationship between nutritional status with the risk of pressure sores in stroke patients [18]. Also, pressure tenderness is higher in patients with low BMI and also in patients with underweight and overweight [21]. This finding is also almost the same as the results of a survey of the prevalence of pressure sores to find out the relationship between the prevalence of pressure sores, BMI, and body weight. The results obtained are a higher prevalence of pressure sores in patients with less or more bodyweight. According to the researchers' assumptions, shown that in people with a small BMI tend to experience a more significant emphasis on bone protrusions compared to people with a higher BMI, so that pressure sores are possible to occur. The risk of pressure sores is also increased in people who are very obese, due to decreasing blood supply to the skin area associated with the thickening of the subcutaneous layer.

3.5. Effect of Preventing Risk of Pressure Wounds on Immobility Patients Who Take Standard Measures Without Effleurage Massage

In the control group, it was found that immobility patients who performed standard measures without partial effleurage massage suffered pressure sores (50.0%). Previous research on the effects of the 300 tilt position on the incidence of class I pressure wounds in stroke patients at Siloam Hospital found that some patients (48.0%) who were tilted were experiencing pressure sores [22]. Actions that can be taken as prevention of pressure sores performed by Abepura Hospital ICU are wound care, topical treatment, mattress therapy,

and education regarding pressure sores. Also, other precautions that can be done is to change the position of the bed every 2 hours by leaning left and right after the patient is bathed in the morning, supporting the head, shoulders, and between the knees with a pillow until the buttocks are raised 300. Positioning is the most valuable component of the prevention of pressure sores. Tilt position until 300 is a repositioning technique to relieve pressure and prevent contact with the skin which can result in pressure sores, by placing the patient's body in the middle of the bed using a pillow to support the head and neck. Furthermore, place one pillow at an angle between the buttocks and the mat by tilting the pelvis as high as 300, and the other pillow is placed lengthwise between the legs [23]. Changes in the position of bed rest on the condition of immobilization which is done every 2 hours regularly and continuously can prevent sufferers from a prolonged emphasis on specific body parts that can result in injury [24]. This study shows that there is an influence between the treatment of 300 tilt position with the incidence of pressure sores, where there are some respondents who are given 300 tilt position treatment of pressure sores. While among respondents who were given standard care interventions, there were respondents (50%) who did not experience pressure sores. The results of studies conducted in the control group also showed that some (50%) patients who had taken standard measures without effleurage massage did not have pressure sores. According to the researchers' assumptions, in order to prevent the risk of pressure sores on immobility patients in Abepura Hospital, nurses are required to conduct a risk category assessment when the patient enters the room so that based on the assessment of the risk category nurses can perform treatments according to hospital operating procedure standards because based on the results of research that the administration of tilted position and skincare significantly affect the prevention of pressure sores.

3.6. The Effect of Massage Effleurage by Using Virgin Coconut Oil to Prevent the Risk of Pressure Sores

Based on the results on immobility patients who performed standard actions and effleurage massage using VCO, mostly did not have pressure sores (100%). Previous research on the application of massage techniques using VCO to prevent the occurrence of pressure sores in stroke patients in the memory room of RSUD Dr. Soedirman Kebumen showed that the majority of respondents who intervened with VCO massage did not occur because of as many as 80% of injuries [25]. Associated with nursing interventions for the prevention of pressure sores, there are three main areas of nursing intervention in the prevention of pressure sores namely skincare which includes hygienic care and topical administration, mechanical prevention and surface support which includes the use of beds, positioning and therapeutic, and educational mattresses [26]. The National Guideline Clearinghouse (NGC) and Institute for Clinical Systems Improvement (ICSI) (2007) recommendations to minimize friction and shear that causing a decrease in tissue tolerance and support the occurrence of pressure sores are as follows: regularly use lubricants from hypoallergenic oils, creams or lotion on the surface of the skin that is pressed, lubricated or sprinkled powder on the bedpan before use by the patient, and protect the skin from moisture. Giving local ingredients that function as a moisturizer will protect against the skin from damage. In the opinion of researchers, hypoallergenic oils, as suggested by NGC and ICSI above, can be obtained from VCO. The process of making VCO that is processed with a minimum of heating or no heating at all can produce coconut oil with a soft texture and transparent colour and fresh-scented coconut.

VCO is beneficial for skin health. The content of fatty acids (especially lauric and oleic acids) softens the skin and antimicrobial so that VCO is effective and safe to use as a moisturizer on the skin by increasing skin hydration and accelerating healing in the skin [27]. The content of saturated fatty acids in VCO can reach 92% which consists of 48% -

53% lauric acid (C12), 1.5-2.5% oleic acid and other fatty acids such as 8% caprylic acid (C: 8), and (7%) capric acid (C: 10). One of the features possessed by coconut fat is its antiviral property. The antics are in the MCFA. All fatty acids, including MCFA and its derivatives (MGs: Monoglyseride), have great ability as the antichrist. Caprylic Acid (C: 8), capric acid (C: 10), and myristic acid (C: 14) have an outstanding ability in eradicating various microbial species from groups of bacteria, fungi, yeast, and viruses [28]. Through enhancing immunity, preventing premature aging, helping cure HIV, controlling diabetes, strengthening teeth, accelerating the healing process of wounds, fighting various infections and viruses, and preventing heart problems [29]. Besides that, VCO also contains vitamin E, which is good for skin health because it is easily absorbed by the skin [30].

From the results of unstructured interviews with several research respondents in the intervention group about their experiences, impressions, and responses when given VCO topically after bathing, they stated that VCO is easily absorbed and not sticky in the skin so that most respondents felt the benefits. VCO that combined with the use of massage can increase blood circulation. The use of VCO with massage not only increases muscle relaxation, improves circulation, but also increases the absorption of the biological content of VCO through the skin. The lubricant effect of VCO will prevent the skin from being massaged from friction injuries due to massage. The research result of Dewandono (2014) said that the application of massage techniques and VCO in the healing of grade II decubitus wounds in the elderly gave a very significant wound development, with the results of dry wounds, wound colour becoming brown, the structure becoming smoother, and wound repair marked by granulation, proliferation, and wounds are getting smaller. The massage technique used by researchers is the effleurage massage technique. Massage effleurage is the most basic massage movement and often used as a connecting movement by the therapist in maintaining contact with the patient by transferring gentle movements from one movement or to the next area of the body. Effleurage is suitable for use in every area of the body that would generally be massaged (while avoiding any area that should not be massaged or contraindicated) [31]. Effleurage is an application of Gate Control Theory because in this technique skin stimulation is done by massaging the surface of the body which will be maximized if it is done without obstructions in the form of clothing [32]. Effects of movement Usually repeated several times over the same area of the body. This is to encourage relaxation and other physical benefits of effleurage, which can help the nerves in the working tissue, facilitate blood supply to the working tissue and facilitate skin control, relax muscle fibres, and release muscles.

Spearman Rank test results knowing the value of sig (1-tailed) = 0.008, $<\alpha$ 0.05, significance level 95%. It can be denied that Ho is rejected and Ha is accepted, really needs to be discussed relating to massage effleurage using VCO regarding the risks that occur in immobility patients in the Abepura Regional General Hospital ICU. There is a difference in the value of sig (1-tailed) = 0.006, $<\alpha$ 0.05, a significant change between effleurage massage using VCO to the change in importance due to pressure sores [25]. Effleurage massage using VCO conducted by researchers in the intervention group in the Abepura Regional General Hospital ICU can provide positive and therapeutic responses to patients who receive these therapies. The positive effect of the massage is the comfortable sensation felt by the patient where the patient feels relaxed, calm, sleepy even asleep. The application of effleurage massage techniques with VCO results in the conclusion that there is no risk of pressure sores, where the skin colour remains reddish, the structure of smooth skin and skin tissue is proper. According to the researchers' assumptions based on the theory and research results, it is proven that effleurage massage treatment using VCO can prevent the risk of pressure sores on immobility patients who are located so that it can be applied inpatient care in the form of patient safety implementation. Based on observations during the study, the researchers concluded that ICU officers at Abepura Regional General

Hospital had implemented several measures to prevent the risk of pressure sores such as bathing patients routinely every morning, repositioning routinely every 2 hours and maintaining a tidy bed. The room also has several air conditioners (AC) to regulate the humidity of the room so that it is maintained.

4. Conclusion

The characteristics of respondents in the most age intervention group were < 60 years (62.5%), women (75.0%), had a high risk (60.0%) with the ideal BMI (57.1 %). Whereas in the most controlled age group was > 60 years (58.3%), men (66.7%), had a high risk (40.0%) with a fatter BMI (66.7%). The effect of standard steps without effleurage massage is that there are samples which have pressure sores (50.0%), and some do not have pressure sores (50.0%). The effect of standard actions with effleurage massage using VCO shows no pressure injury (100%). Moreover, there is a significant relationship between effleurage massage using Virgin Coconut Oil to prevent the risk of pressure sores based on the Rank Spearman statistical test.

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