

OAT Lotion Reduces Itching Sensation Due to Pruritus in Hemodialysis

Dede Wita Juwita Wulan Sari

Nursing Study Program, Indonesia Maju University

Jl. Lenteng Agung-Jakarta Selatan

Email Corespondent: witadede81@gmail.com

Research Article

Volume: 01

Issue: 03

Years: 2022

Editor: HF

Received: 24/03/2022

Reviewed: 31/08/2022

Published: 01/10/2022

Available Article: (doi)
10.53801/jcn.v1i3.47

Copyright: ©2022 This article has open access and is distributable under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the name of the author and the original source are included. This work is licensed under a **Creative Commons Attribution-Share Alike 4.0 International License**

Abstract

Background: Hemodialysis is the most commonly used renal replacement therapy for chronic kidney disease. Symptoms caused if the patient has chronic kidney failure include uremia. Uremic pruritus is an uncomfortable condition for the patient, so it requires medication or treatment to help relieve it. Pruritus that occurs in hemodialysis patients causes itching and dryness of the skin.

Objectives: The purpose of this study was to determine the effect of giving oat lotion on itching sensation in hemodialysis patients who experienced pruritus at the RS UMMI Bogor in 2020.

Methods: This study used a quantitative method with a pre-experimental design and a one-group pre/post-test design. The sample selection used purposive sampling with a total of 20 respondents. The therapeutic action given is oat lotion which is applied to the part of the body that has uremic pruritus. Given 2 times a day (about 5 ml) for 7 days. The bivariate test used the Wilcoxon test.

Results: the results showed that there was an effect of oat lotion on the itching sensation of hemodialysis patients who experienced pruritus, as evidenced by a decrease in the mean pre-test from 26.10 to 12.85 post-test with a p-value = 0.000.

Conclusion: The itching sensation in pruritic patients undergoing hemodialysis will decrease by being given oat lotion.

Keywords: hemodialysis, oat lotion, uremic pruritus

Introduction

Hemodialysis is the most frequently used kidney replacement therapy for chronic kidney disease.¹ Based on basic health research in 2018 there were 19.3% of the Indonesian population experienced chronic kidney failure. Chronic Kidney Failure (CKD) is a progressive and irreversible kidney function disorder, where the body is unable to maintain metabolism and fails to maintain fluid and electrolyte balance which increases urea. In patients with chronic kidney failure, it is persistent, incurable and requires hemodialysis and outpatient treatment for a long period.²

Kidney disease is the ninth leading cause of death in the United States. It is estimated

that 37 million adults in the United States have CKD and most are undiagnosed. 40% of people with severely reduced kidney function are unaware of having CKD. Every 24 hours, 350 people start dialysis treatment for kidney failure. In the United States, diabetes and high blood pressure are the main causes of kidney failure, representing about 3 out of 4 new cases.³ Riskesdas in 2018, the prevalence of CKD in Indonesia undergoing hemodialysis > 15 years was 19.3%, the highest prevalence in Jakarta is 38.7% experiencing CKD, while West Java is 19.3%.⁴ Based on the Indonesian Renal Registry (IRR) (2016), 98% of patients with CKD undergoing HD therapy and 2% underwent peritoneal dialysis therapy. Based on IRR data in 2017, CKD patients undergoing hemodialysis increased to 77,892 patients.⁵

Symptoms caused if the patient has chronic kidney failure include uremia. Uremia is a toxic clinical syndrome associated with fluid, electrolyte, and hormonal imbalances as well as metabolic disorders due to decreased kidney function and the damaging effects of azotemia on organ systems.⁶ Pruritus experienced by hemodialysis patients is caused by uremia which can damage the protective layer of the patient's skin. Uremic pruritus causes an uncomfortable condition for the patient that requires medication or treatment to help relieve it. Pruritus that occurs in hemodialysis patients causes itching and dryness of the skin. Uremic pruritus can interfere with activities or work, interfere with sleep, and reduce the quality of life. It is associated with a substantially reduced quality of life, depression, poor sleep quality, and increased mortality.⁷

Based on a preliminary study through interviews with 10 respondents, there were 6 respondents (60%) who stated that their bodies were itchy during hemodialysis so respondents often scratched which caused blisters and skin infections even if a long period caused ketosis (dryness and roughness). Four respondents (40%) felt itchy but not too bothersome. Nurses as health service providers strive to overcome patient complaints, both physical problems and psychological patients. Pruritus as a common skin complaint in hemodialysis patients requires additional or complementary interventions.

Complementary therapies used to treat pruritus include acupressure, acupuncture and topical lotions. One of the topical lotions that can be used is oat lotion. Based on research conducted by Kim (2021), wheat (*Avena Sativa*) is a grain of the grass family Poaceae containing many strong, anti-oxidant substances, including avenanthramides as phenolic alkaloids with anti-inflammatory, anti-oxidant, anti-inflammatory activity. itching, anti-irritant, and anti-atherogenic.⁸ Nurses can use non-pharmacological therapy to treat pruritus complaints in hemodialysis patients. There have been many studies in Indonesia that use non-pharmacological approaches to overcome the problems experienced by patients with pruritus such as aromatherapy and acupressure. However, there are still limited studies in Indonesia that use topicals such as the use of oat lotion, so researchers are interested in researching this.

Based on the above background, the purpose of this study was to determine the effect of giving oat lotion on the itching sensation in hemodialysis patients who experienced pruritus at the UMMI Bogor Hospital in 2020.

Methods

This research is a quantitative study using a pre-experimental design by designing a one-group pre/post-test design. This study was given an intervention after oral massage and then assessed by comparing the pre-test and post-test with oral massage for 7 days. The

population is 50 with inclusion criteria. To determine the number of samples in this study using a purposive sampling technique. The number of samples used in this study amounted to 20 respondents. The researcher used the Shapiro-Wilk test. Bivariate analysis used Wilcoxon nonparametric statistical test because the data were not normally distributed. this research has been conducted a research ethics test at the Research Ethics Commission of the STIKIM and has passed the ethical test with No. 2524/Sket/Ka-Dept/RE/STIKIM/XI/2021, and this research was conducted at RS UMMI in October -December 2021.

Results

Table 1. Frequency Distribution of Age, Gender, Duration of Hemodialysis Pre-test Pruritus and Post-test Pruritus at RS UMMI Bogor (n=20)

Variable	Frequency (N)	Percentage (%)
Age		
26-35 Years	1	5
36-45 Years	5	25
46-55 Years	5	25
56-65 Years	6	30
>65 Years	3	15
Gender		
Man	13	65
Woman	7	35
Duration of Hemodialysis		
< 1 Year	13	65
1-3 Years	7	35
> 3 Years	0	0
Pruritus (pre-test)		
Low itch \leq 11	0	0
Moderate itch $>$ 12	20	100
Pruritus (post-test)		
Low itch \leq 11	0	0
Moderate itch $>$ 12	20	100

Based on table 1 shows that respondents are aged 56-65 years as many as 6 respondents (30%), the number of ages between 36-45 years is 5 respondents (25%), the total age is 46-55 years is 5 respondents (25%). Age 26-35 years amounted to 1 respondent (5%), while age > 65 years amounted to 3 respondents (15%). The gender is mostly male with 13 respondents (65%) and female with 7 respondents (35%). The longest duration of hemodialysis is < 1 year for 13 respondents (65%), and the treatment duration is 1-3 years for 7 respondents (35%).

Table 1 shows that the level of itching sensation in the pre-test 20 respondents (100%) experienced a severe itching sensation and no one experienced a mild itching sensation. In the level of post-test itching sensation, 16 respondents (80%) experienced a severe itching sensation and as many as 4 respondents experienced a mild itching sensation (20%).

Table 2. The intensity of Itching Sensation in Hemodialysis Pruritus at RS UMMI Bogor (n=20)

	N	Mean	Std Dev	Min	Max	P-value
Pre-test	20	26,10	2,732	22	32	0,000

Post-test	20	12,85	1,725	10	16
------------------	----	-------	-------	----	----

Based on table 2 above, it can be seen that before and after oat lotion was given there was a decrease in itching sensation in hemodialysis patients who experienced pruritus at the RS UMMI Bogor which was indicated by a decrease in the mean. In the pre-test, the mean was 26.10 and decreased to 12.85. It can be seen that the p-value is 0.000 with a significant level of $\alpha = 0.05$, so the p-value < 0.05 so it can be said that administration can reduce itching sensation in hemodialysis patients who experience pruritic oat lotion at RS UMMI, Bogor.

Overview of Characteristics of Respondents

Based on the results of the research above, 30% of respondents were aged 56-65 years old, 25% were between 36-45 years old, and 25% of 46 - 55 years old. This age shows that hemodialysis patients who experience pruritus vary from late adulthood to late elderly. This is in line with the research conducted by Touran (2019), that most hemodialysis patients are between 46-55 years old or the early elderly to the elderly.⁹ This is different from research conducted by Abdelghfar (2017), in his study in Egypt the age of hemodialysis patients who experienced pruritus was 53% less than 40 years.¹⁰ When viewed from the results of the 2018 Riskesdas, the highest age group experiencing chronic kidney failure is 65-74 years of age.⁴ The aging process or the increasing age of a person can encourage a decrease in organ function so that the age of patients undergoing hemodialysis tends to get older. This can be supported by research conducted by Ersoy & Akyar (2019), which states that research on the skin of elderly patients is drier due to the entropy of the sebaceous glands and sweat glands.¹¹ Researchers assume that patients with chronic kidney failure develop due to age and lifestyle factors such as eating and drinking so unhealthy patterns increase the number of sufferers.

Based on gender, most of them are 65% male. In line with research conducted by Toruan (2019), the majority of patients undergoing hemodialysis with pruritus were 82% male.⁹ In line with the research of Martin et. al. (2020), males show a higher likelihood of having moderate to extreme pruritus.¹² Male gender was also identified as a predictor of pruritus in a study of 6,137 patients undergoing hemodialysis in 7 countries.¹² This is different from research conducted by Abdelghfar (2017), in his research in Egypt, the sex of most hemodialysis patients was 67% women.¹⁰ Based on Riskesdas 2018, the male is the largest patient with chronic renal failure.¹³ Research conducted by Saedi et. al. (2015), that gender has no relationship with the incidence of pruritus because there is no hormonal role in men or women.¹⁴ The researcher assumes that this study is dominated by men because most men work and the pattern of maintaining health, especially drinking is often forgotten or even drinking soft drinks.

The results of this study found that the longest duration of treatment (hemodialysis) was < 1 year 65%, and the length of treatment was 1-3 years for 7 respondents 35%. In line with research conducted by Toruan (2019), 87% of respondents underwent hemodialysis between 6-12 months.⁹ This is different from the research conducted by Abdelghfar (2017), in his study in Egypt the duration of kidney disease undergoing hemodialysis was mostly between 9-12 years.¹⁰ This study found that the highest hemodialysis patients aged under 1 year showed an increase in patients with chronic kidney failure who underwent hemodialysis were patients who underwent hemodialysis in a new category. When compared with the results of a study in Egypt, patients who underwent hemodialysis for a long time were between 9-12 years. The

increase in patients undergoing hemodialysis in under 1 year is because the enthusiasm for treatment is still high.

Itching sensation

The results showed that the pre-test level of itching sensation was 100% experienced a severe itching sensation and no one experienced a mild itching sensation. This is in line with Touran's research (2019), that 80% experienced a high itching sensation.⁹ This is also in line with research conducted by Abdelghfar (2017), that before the intervention, the itching sensation or pruritus level was moderate to severe.⁹ If analyzed, most hemodialysis patients experience pruritic uremic due to several conditions that play a role, including hyperphosphatemia, hyperparathyroidism, uremic toxin accumulation, and early uremic sensory neuropathy.¹⁰

The results showed that at the level of post-test itching sensation 80% experienced a severe itching sensation and as many as 4 respondents experienced a mild itching sensation 20%. In line with research conducted by Touran (2019) that after the intervention of giving oat lotion, complaints decreased with the result that 85% experienced mild pruritus.⁹ While Abdelghfar's research (2017), that after aromatherapy intervention, the itching sensation or level of pruritus decreased to 67% no pruritus and 33% mild pruritus. The reduction in itching sensation with the use of oat lotion is effective.¹⁵

The intensity of Itching Sensation by Giving Oat Lotion

Based on the results of the bivariate analysis, it was known that before and after oat lotion was given there was a decrease in itching sensation in hemodialysis patients who experienced pruritus at the RS UMMI Bogor, which was indicated by a decrease in the mean. In the pre-test, the mean was 26.10 and decreased to 12.85. It can be seen that the p-value is 0.000 with a significant level of = 0.05, so the p-value <0.05 so it can be said that giving oat lotion can reduce itching sensation in hemodialysis patients who experience pruritus at RS. UMMI Bogor.

This is in line with research conducted by Touran (2019) that decreased the intensity of the itching sensation given oat lotion with a p-value = 0.01.⁹ Giving oat lotion proved effective in reducing itching sensation in hemodialysis patients who experienced uremic pruritus with p-value = 0.000. Oat lotion contains many potent anti-oxidants, including avenanthramides as phenolic alkaloids with anti-inflammatory, antioxidant, anti-itch, anti-irritant, and anti-atherogenic activities.⁸ Research conducted by Vaughn et. al. (2018), regarding the use of natural vegetable oils in dermatology, particularly in improving natural skin function, with a focus on *Avena sativa* natural oil (wheat germ oil), showed that wheat germ oil has benefits in enhancing the skin's natural defenses.¹⁶

Research conducted by Reynertson et. al. (2015), the colloidal oatmeal extract reduced pro-inflammatory cytokines in vitro, and colloidal oat skin protective lotion showed clinically significant improvements in skin dryness, scaling, roughness, and itching intensity.¹⁷ A clinical study conducted by Ilnytska et al., (2016), for five weeks, was conducted to demonstrate the effectiveness of oatmeal skin protective lotion in improving moisture and barrier function of moderate to severely dry skin and to measure the effect of skin residue after treatment was discontinued. Collectively, the buffering capacity indicated that colloidal oatmeal aqueous extract had pH buffering activity. effective, suggesting that colloidal oats may benefit the skin

by helping to provide a skin barrier with increased pH buffering capacity and therefore potentially aiding in protection against irritants.¹⁸

Based on research results that oat lotion is effective in reducing itching sensation in patients undergoing hemodialysis is a reaction by the presence of anti-oxidant, anti-inflammatory, anti-itch, anti-irritant, and anti-atherogenic activity contained in oat lotion given to uremic pruritic patients undergoing hemodialysis.

Conclusion

The results of this study can be concluded that the majority of respondents are aged 56-65 years as much as 30%. Gender is mostly male. The longest duration of treatment was < 1 year 65%. The level of itching sensation pre-test was 100% experienced a severe itching sensation and no one experienced a mild itching sensation. At the level of post-test itching sensation 80% experienced a severe itching sensation and a mild itching sensation 20%. There is a decrease in itching sensation in hemodialysis patients who experience pruritus at the RS UMMI Bogor which is indicated by a decrease in the mean. So it can be said that giving oat lotion can reduce itching sensation in hemodialysis patients who experience pruritus at the RS UMMI Bogor in 2021.

References

1. Brunet P. Treatment of chronic kidney failure by hemodialysis. *Soins*. 2018;63(826):21–3.
2. Black JM, Hawks JH. *Keperawatan Medikal Bedah; Manajemen klinis untuk hasil yang diharapkan*. 2014;
3. Amini F, Oktora SI. Comorbid of chronic kidney disease (CKD) patients who undergoing dialysis in Indonesia using firth logistic regression. In: *AIP Conference Proceedings*. AIP Publishing LLC; 2021. p. 20009.
4. Riskesdas. Hasil Utama Riset Kesehatan Dasar. Kementrian Kesehatan Republik Indonesia. 2018. 1–100 p.
5. RI K. *Buku Saku Pemantauan Status Gizi dan Indikator Kinerja Gizi Tahun 2015*. Jakarta Direktorat Gizi Masy Direktorat Jenderal Kesehat Masy Kementeri Kesehat RI. 2016;
6. Doenges ME. *Rencana Asuhan Keperawatan Pedoman Asuhan Klien Anak-Dewasa Edisi 9*. Jakarta EGC. 2018;
7. Pisoni RL, Wikström B, Elder SJ, Akizawa T, Asano Y, Keen ML, et al. Pruritus in haemodialysis patients: International results from the Dialysis Outcomes and Practice Patterns Study (DOPPS). *Nephrol Dial Transplant*. 2006;21(12):3495–505.
8. Kim S, Kim TH, Jeong YJ, Park SH, Park SC, Lee J, et al. Synergistic effect of methyl jasmonate and abscisic acid co-treatment on avenanthramide production in germinating oats. *Int J Mol Sci*. 2021;22(9):4779.
9. Toruan ENAL. Pengaruh Lotion Oat Terhadap Sensasi Gatal Pada Pasien Hemodialisa yang Mengalami Pruritus di RS Kota Medan. 2019;
10. Abdelghfar SZ, Elsebae HA, Elhadry SM, Hassan AA. Effect of aromatherapy on uremic pruritus among patients undergoing hemodialysis. *IOSR J Nurs and Heal Sci*. 2017;6(2):22–30.
11. Altinok Ersoy N, Akyar İ. Multidimensional pruritus assessment in hemodialysis patients. *BMC Nephrol*. 2019;20(1):1–7.
12. Martin CE, Clotet-Freixas S, Farragher JF, Hundemer GL. Have we just scratched the surface? A narrative review of uremic pruritus in 2020. *Can J Kidney Heal Dis*. 2020;7:2054358120954024.
13. Riskesdas K. Hasil Utama Riset Kesehata Dasar (RISKESDAS). *J Phys A Math Theor*. 2018;44(8):1–200.
14. Ghassan B, Alalsaidissa JNJ, Al-Saedi AJH, Alawchi SN. Relationship of Pruritus with Biochemical and Haematological Parameters in Haemodialysis Patients (A Single Center Study). *J Fac Med Baghdad*. 2015;57(4):306–11.
15. Michelle Garay M. Colloidal oatmeal (*Avena Sativa*) improves skin barrier through multi-therapy

- activity. *J Drugs Dermatol.* 2016;15(6):684–90.
16. Vaughn AR, Clark AK, Sivamani RK, Shi VY. Natural oils for skin-barrier repair: ancient compounds now backed by modern science. *Am J Clin Dermatol.* 2018;19(1):103–17.
 17. Reynertson KA, Mahmood K. The importance of quality and authenticity for botanical R & D. CRC Press New Jersey; 2015.
 18. Ilnytska G, Kozina Z, Kabatska O, Kostiukevych V, Goncharenko V, Bazilyuk T, et al. Impact of the combined use of health-improving fitness methods (“ Pilates” and" Bodyflex") on the level of functional and psychophysiological capabilities of students. *J Phys Educ Sport.* 2016;16(1):234.