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Effect of Topical Aromatherapy Turmeric Oil to Pruritus Scale on Chronic Kidney Disease Patients



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Related Factors of Parental Knowledge about Stunting in Toddler

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Abstract

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A large number of patients with chronic kidney disease suffer from uremic pruritus, itch on skin caused many problems. Uremic pruritus adversely affects the quality of life and comfort of patients with potential impact on psychological, functional, social aspect, and increased morbidity. The purpose of this study was to determine the effect of turmeric essential oil aromatherapy which applied topically to pruritus scale on CKD patients. This study used quasi-experimental design with 2 groups (intervention and control), conducted in CKD patients receiving hemodialysis therapy. A total sample of 72 respondents, each group of 36 people. The intervention was applied twice a day for 2 weeks. Measurement using 5-D pruritus scale questionnaire. This result showed a decrease in pruritus scale on 51 respondents (70.8%) after 2 weeks therapy. Independent t statistical test obtained p value 0.046 ($p < 0.05$). It can be concluded that topical aromatherapy of turmeric oil affects pruritus scale on patients with chronic kidney disease who experience uremic pruritus.

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INTRODUCTION

Uremic pruritus (UP) is a common symptom that endangers end-stage renal disease patients undergoing hemodialysis. Uremic pruritus characterized by itching on the skin, adversely affects quality of life of patients with uremia. Chronic pruritus can be persistent and troublesome for CKD patients, and significantly influence quality of life, physical comfort with potential psychological, functional and social impacts, and increased morbidity (Kimata et al., 2014), 2, 3). (Kimata et al., 2014; Mettang et al., 2005; Pakfetrat et al., 2014)

According to Mettang (2005), more than 40% of patients undergoing hemodialysis experience chronic PU, and half of them complain of complete pruritus (Mettang et al., 2005). The 2006 DOPPS II observational study in 314 Hemodialysis units in 12 countries showed a range of the percentage of patients with moderate to extreme PU in the range of 5-75%.

The mechanism of the occurrence of pruritus in chronic kidney disease is not known with certainty although there are several theoretical mechanisms published in the study. Chen's 2010 study proved that the inflammatory process plays an important role in the process of PU occurring in ESRD patients. Patients with severe PU have higher levels of C-reactive protein (hs-CRP). In addition, research conducted by Kimmel 2006 of inflammatory cytokines interleukin-2 (IL-2) increases pruritogen formation in uremic pruritus (Kimata et al., 2014; Mettang et al., 2005; Pakfetrat et al., 2014).

Effective treatment options for PU are limited because of the small number of placebo randomized controlled trials (RCTs) for PU therapy, most of which show low therapeutic success. The most important approach to PU therapy currently according to Mettang (2003) (Mettang & Kremer, 2015) is topical therapy with or without anti-inflammatory compounds or systemic treatment (Mettang et al., 2005; Pakfetrat et al., 2014).

Aromatherapy is one of the complementary (non-pharmacological) methods of treatment that is increasingly being used to reduce uremic pruritus symptoms. Some aromatherapy that have been proven to reduce uremic pruritus are lavender oil, tea tree oil, jojoba oil, almond oil, sunflower oil, peppermint oil which are given topically to the skin of uremic pruritus patients. Typical Indonesian plant in rhizome family, namely turmeric, contains curcumin and essential oils (turmerone) that has been shown

to play a role in alleviating the inflammatory process. Turmeric aromatherapy has good smell that is familiar and loved by Indonesian people. Researcher suspect that aromatherapy turmeric oil can reduce uremic pruritus symptoms by alleviating the inflammatory process that play a role in releasing pruritogen (Abdelghfar, Elsebae, Elhadry, & Hassan, 2017; Afrasiabifar, Mehri, & Hosseini, 2016; Curcani & Tan, 2014).

OBJECTIVES

This study is aimed to determine the effect of topical aromatherapy turmeric oil on uremic pruritus scale among chronic kidney disease patients.

METHODS

The current study used pretest-posttest quasi-experimental design with a control group. The samples of 72 hemodialysis patients were divided into 2 groups, 36 intervention group was given aromatherapy turmeric oil while 36 others received standard therapy in hospital. Purposive sampling is used to recruit patients undergoing hemodialysis which match the inclusion criteria: age ranged 18-65 years old, suffer from pruritus uremic in 2 weeks, had chronic kidney disease for more than 6 months.

Five dimension pruritus scale (5-D pruritus scale) is used to measure the scale of pruritus. The remaining items were grouped into five domains: duration, degree, direction, disability and distribution. The duration, degree and direction domains each included one item, while the disability domain had four items. All items of the first four domains were measured on a five-point likert scale. The scores of each of the five domains are achieved separately and then added together to get a total 5-D score, with a range of 5-25.

The researcher conducted sensitivity test before applying aromatherapy to make sure that the participant was not allergic to oils by applying turmeric oil on small area of skin for a period of time. Objective and subjective measurement was performed before and after the intervention. The collected data were analyzed using the paired t-test.

This study was approved by the research ethical committee of Haji Public Hospital Surabaya, Indonesia with registration number 073/19/KOM.ETIK/2019. All respondents were informed of the purpose of the study and consented for their participation in the study.

RESULTS

Table 1 below shows the characteristics of respondents based on sex, most of them are male, 43 respondents (59.7%). The majority of respondents in this study were in the age range 41-60 years, 51 respondents (70.8%). Based on the duration of HD therapy, the majority of respondents had HD therapy for more than 24 months, 39 respondents (54%). As for the history of the disease most of the respondents had hypertension, at 45 respondents (62.5%).

Chisquare test results on the characteristics of sex, age and length of HD, it is known that each of them obtained a significance value of more than

0.05 which showed no significant differences in the data of sex, age and length of HD in the intervention and control groups. While the characteristics of the history of the disease were tested using Kruskal Wallis which also produced a significance value of more than 0.05. It can be concluded that there were no significant differences in the history of disease in the intervention and control groups.

Table 2 showed the average post-test score of the control group pruritus was 14.75 and the intervention group was 13.53. The significance value obtained from the independent t test was 0.046 ($p < 0.05$) which showed a significant difference in the post-test score of the pruritus scale in the

Table 1 Baseline Characteristics of Hemodialysis Patients (n=72)

Characteristics	G1 (Aromatherapy Turmeric Oil) n = 36		G2 (Control Group) n = 36		p
	f	%	f	%	
Sex					
Male	23	63,89	20	55,56	0,631
Female	13	36,11	16	44,44	
Age					
18-40 y.o	7	19,44	5	13,89	0,193
41-60 y.o	27	75	24	66,67	
61-65 y.o	2	5,56	7	19,44	
Duration HD therapy					
< 12 months	7	19,44	5	13,89	0,736
12-24 months	11	30,56	10	27,78	
> 24 months	18	50	21	58,33	
Disease					
Hipertention	27	58,70	18	43,90	0,267
Diabetes Mellitus	14	30,43	6	14,63	
Renal Disease	4	8,70	8	19,51	
Cardiovascular Disease	0	0	7	17,07	
Others	1	2,17	2	4,88	

Source : Primary Data

Table 2 Within- and Between-Group Comparison of the Mean Pretest/Post-Test Pruritus Scores of the Patients in Experimental and Control Groups (n=72)

Groups	Pruritus scale		t	p
	Pre test x ± SD	Post test x ± SD		
Experimental	15,44 ± 4,13	13,53 ± 2,76	4,559	0,000
Control	14,94 ± 2,82	14,75 ± 2,32	0,631	0,532
t	1,261	-2,032		
p	0,212	0,046		

Source : Primary Data

$p < 0,05$, t = independent samples t-test

intervention group compared to the control group. It can be interpreted that administration of topical aromatherapy of turmeric oil is more effective in reducing the scale of pruritus.

DISCUSSION

Until now there has been no effective treatment for uremic pruritus because the underlying etiology cannot be ascertained. This allows the use of various complementary and alternative medicine therapies (CAM) to treat uremic pruritus, one of them is aromatherapy (Shirazian et al., 2017).

The results of the study of the influence of turmeric oil aromatherapy on the uremic pruritus level were measured using a 5-D pruritus scale showed a decrease in scores after giving intervention for 2 weeks. Independent t test results in the post-test intervention and control group showed that administration of topical aromatherapy of turmeric oil was more effective in reducing the pruritus scale than the provision of standard therapy (VCO). This study is supported by the results of the study (Abdelghfar et al., 2017) which proved that aromatherapy with a mixture of peppermint oil and sunflower oil applied to the pruritic area can significantly reduce pruritus scores in hemodialysis patients.

This research proves the effect of topical aromatherapy on turmeric oil can reduce the degree of pruritus from severe to moderate in more than half of the respondents in the intervention group. This study is supported by another study conducted by (Pakfetrat et al., 2014) which explains that the content of turmeric can reduce the inflammatory process in uremic pruritus which is characterized by a decrease in hs-CRP levels in 100 hemodialysis patients receiving turmeric tablets (turmeric extract). Turmeric contains many active ingredients that can provide treatment effects. Among the active ingredients of turmeric, curcumin and turmeron in essential oils are substances that play a role in the inflammatory process by inhibiting the release of mediators (cytokines, interleukins, etc) and this process is also one of the causes that play a role in the process of itching in uremic pruritus (Mettang et al., 2005)

The administration of turmeric oil aromatherapy reduced the uremic pruritus scale to 28 respondents in the intervention group, proved to be more effective than standard therapy that is commonly used, namely VCO which reduced the pruritus scale to 23

respondents. This is supported by research (Curceni & Tan, 2014) which shows that the administration of lavender aromatherapy mixed in tea tree oil can significantly reduce pruritus scores and laboratory parameters (BUN and phosphorus) in end-stage renal failure patients.

Respondent reported a decrease in itching (pruritus) after giving turmeric oil aromatherapy for 2 weeks, and became more relaxed, and slept more tightly at night. This is supported by research conducted by (Afrasiabifar et al., 2016) which proves that the administration of sweet almond oil aromatherapy can significantly reduce the symptoms of uremic pruritus after giving topically once a day for 2 weeks. It can be concluded that the administration of turmeric oil aromatherapy, is effective in reducing uremic pruritus.

CONCLUSION AND SUGGESTION

Conclusion

Topical aromatherapy of turmeric oil in patients with chronic kidney disease who experience uremic pruritus has a positive impact in the form of decreased pruritus scale. This therapy is an alternative choice of complementary therapy that can be used as standard therapy and therapeutic recommendations for uremic pruritus patients.

Suggestion

We recommend do skin test first before topically use aromatherapy turmeric oil, as the risk of skin allergy. Further study expected to be carried out by exploring more deeply about therapeutic effects and side effects of turmeric oil for uremic pruritus, as well as effective doses for therapy.

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