



Research Paper

Assessment of Efficacy of Liquid Paraffin in Comparison with Coconut Oil on CKD associate Pruritus

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ABSTRACT:

Background: Uremic pruritis affects 50 - 90 % of patients with chronic kidney disease and symptoms range from localized and mild to generalized and severe. Despite being an annoyance, CKD-associated pruritis can adversely affect the quality of life (QOL) and medical outcomes.

Objective: To assess the efficacy of liquid paraffin in comparison with coconut oil on CKD-associated pruritus.

Material & Methods: This is a quasi-experimental non-randomized control study that was proposed at the Government nursing college Raipur and the study was conducted at DKS, Post Graduate and Research Centre Raipur during the study period from December 2018 to October 2019. A total of 60 patients were divided into 3 different groups: group C is Coconut oil sample size was 20, group P is Liquid Paraffin sample size was 20 & Control group sample size was 20. Chronic kidney disease patients with critical illness & who are on some skin treatment were excluded.

Results: The majority 51 (85.0%) of the patients were male, 30 (50.0%) were belonging to the age group between 18 - 44 years, 25 (41.7%) were Graduate and Post Graduate & 41 (68.3%) were having disease < 2 years, 59 (98.3%) of the patients in Haemodialysis, 58.3% were taking dialysis twice a week, 38 (63.3%) were giving dialysis from last 1 year. In our study found that the group C, the pre-test score was 14.65 & the post score was 11.65. In group P, the pre-test score was 18.35 & the post score was 14.8. Similarly, control group, the pre-test score was 17.3 & the post-test score was 16.7, it was shown a significant reduction of pruritus among CKD patients.

Conclusion: In our study shows that the comparison among coconut oil, Liquid Paraffin, and control group in terms of reducing the pruritus score revealed that the coconut oil is a statistically significant difference with the control group but coconut oil is not statistically significantly different from Liquid Paraffin oil. Also, Liquid Paraffin is not statistically significantly different from a control group.

KEYWORDS: Coconut Oil, Chronic Kidney Disease, Pruritus, Liquid Paraffin

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I. INTRODUCTION:

Pruritus is a common and distressing symptom in patients with chronic kidney disease. The most recent epidemiological data have suggested that approximately 40% of patients with end-stage renal disease experience moderate to severe pruritus and that uremic pruritus (UP) has a major clinical impact, being associated strongly with poor quality of life, impaired sleep, depression, and increased mortality. [1-3]

Although these oils have been used to moisturise and smoothen the skin of any age, their most widespread use continues to be in neonates and infants, as their skin is much more delicate and prone to trauma and infections than their adult counterparts due to certain differences in their properties. However, all oils are not equally effective; some like almond oil and mustard oil might even be harmful to the skin to a certain degree. [4]

The triglycerides are principally triesters of polyol glycerin with long-chain monocarboxylic fatty acids; the latter may be saturated or unsaturated. Coconut oil and palm oil contain mainly saturated fatty acids, while other oils largely contain unsaturated fatty acids (oleic acid, linoleic acid, and linolenic acid). The 95% of

coconut oil is comprised of saturated fat Lauric, myristic, caprylic, capric, palmitic acid with the functions of sebum reconstitution properties.

Recently, studies have shown that aside from the nature of oil used, the very act of oil massaging has several beneficial effects on infantile skin. These effects are related to the tactile-kinesthetic stimulation due to massage. [5]

There are several beneficial effects of massage ranging from weight gain, better sleep-wake cycle, enhanced neuromotor development, emotional bonding, and lower rates of nosocomial infections in both term and pre-term babies. [6]

Coconut oil is comprised of a unique combination of natural fats, which makes it useful in treating the skin. These fatty acids include linoleic acid (which is beneficial for acne-prone skin) and up to 50 percent lauric acid (which is hydrating and antimicrobial), It also contains vitamin E and healthy fats, which help to make skin smooth. This study aims to find out the reduction of incidence and severity of ureic pruritus associated with chronic kidney disease by using coconut oil in comparison with Liquid Paraffin.

II. MATERIALS & METHODS:

This is a quasi-experimental non-randomized control study that was proposed at the Government nursing college Raipur and the study was conducted at DKS, Post Graduate and Research Centre Raipur during the study period from December 2018 to October 2019. In this study, purposive sampling techniques were used & a total of 60 patients with chronic kidney disease with ureic pruritus was included for the study. A total of 60 patients were divided into 3 different groups: group C is Coconut oil sample size was 20, group P is Liquid Paraffin sample size was 20 & Control group sample size was 20. Chronic kidney disease patients with critical illness & who are on some skin treatment were excluded.

After obtaining the Institutional Ethical approval, a self-structured questionnaire and modified itchy scale was used among chronic kidney disease patients with uremic pruritus admitted in DKS, Post Graduate and Research Centre Raipur (C.G.)

Data collection is a precise, systematic method of gathering information relevant to the research. The main study was conducted in DKS, Post Graduate, and research center Raipur (CG.). Formal written permission was obtained from the concerned authorities of the hospital. The data collection period was from December 2018 to October 2019.

The sample of 60 chronic kidney disease patients with uremic pruritis admitted in DKS, Post Graduate and Research Centre Raipur (C.G.). The patients were selected based on inclusion criteria by using a convenient sampling technique. The investigator introduced her and develops a rapport with the subjects. Then the purpose of the study was explained and the subjects were reassured that the data collected would be kept confidential. The investigator obtained consent from the subjects before the study.

Statistical Analysis:

Data were entered in Microsoft excel and analysis was done by Microsoft excel. Categorical data were presented as s frequency or percentage. Continuous data were presented as a Mean + standard deviation. Chi-square tests were used for showing the association between categorical data. T-test was used for showing the mean difference between continuous variables. P-value < 0.05 was considered as statistically significant.

III. RESULTS:

A total of 60 patients of chronic kidney disease patients with uremic pruritis were admitted to DKS, Post Graduate and Research Centre Raipur (C.G.). Out of these, 20 patients were included in group C, 20 were included in group P & 20 were included in the Control group.

In the below table no. 1 shows that the majority 51 (85.0%) of the patients were male, out of 20 patients in each group, 20 (100.0%) were in group C, 14 (70.0%) were in group P & 17 (85.0%) were in the control group. The majority 30 (50.0%) of the patients were belonging to the age group between 18 - 44 years, out of 20 patients in each group, 13 (65.0%) were in group C, 11 (55.0%) were in group P & 6 (30.0%) were in the control group. Maximum 25 (41.7%) patients were Graduate and Post Graduate, out of 20 patients in each group, 9 (45.0%) were in group C, 6 (30.0%) were in group P & 10 (50.0%) were in Control group. The majority 41 (68.3%) of the patients were having the disease for less than 2 years. Out of 20 patients in each group, 13 (65.0%) were in group C, 16 (80.0%) were in group P & 12 (60.0%) were in Control group.

Table No. 1: Demographic distribution in the study participants.

Variables		Group C	Group P	Control Group	Total
Gender	Male	20 (100.0%)	14 (70.0%)	17 (85.0%)	51 (85.0%)

	Female	0 (0.0%)	6 (30.0%)	3 (15.0%)	9 (15.0%)
Age group	18 - 44	13 (65.0%)	11 (55.0%)	6 (30.0%)	30 (50.0%)
	45 - 64	6 (30.0%)	8 (40.0%)	13 (65.0%)	27 (45.0%)
	65 - 84	1 (5.0%)	1 (5.0%)	1 (5.0%)	3 (5.0%)
Education	Illiterate	2 (10.0%)	6 (30.0%)	5 (25.0%)	13 (21.7%)
	Primary	2 (10.0%)	1 (5.0%)	0 (0.0%)	3 (5.0%)
	Middle School	7 (35.0%)	7 (35.0%)	5 (25.0%)	19 (31.7%)
	Graduate & Post Graduate	9 (45.0%)	6 (30.0%)	10 (50.0%)	25 (41.7%)
Duration of Disease	< 2 Years	13 (65.0%)	16 (80.0%)	12 (60.0%)	41 (68.3%)
	2 - 4 Years	4 (20.0%)	3 (15.0%)	4 (20.0%)	11 (18.3%)
	4 - 7 Years	2 (10.0%)	0 (0.0%)	3 (15.0%)	5 (8.3%)
	> 7 Years	1 (5.0%)	1 (5.0%)	1 (5.0%)	3 (5.0%)

In table no. 2 shows that the majority of 59 (98.3%) of the patients in Haemodialysis. Out of 20 patients in each group, 19 (95.0%) were in group C, 20 (100.0%) were in group P & control group respectively. Maximum 58.3% of the patients were taking dialysis twice a week. Out of 20 patients in each group, 13 (65.0%) were in group C, 11 (55.0%) were in group P & Control group respectively. The majority 38 (63.3%) of the patients were giving dialysis for the last 1 year. Out of 20 patients in each group, 11 (55.0%) were in group C, 15 (75.0%) were in group P & 12 (60.0%) were in Control group.

Table No. 2: Frequency Distribution of the study participant according to the dialysis.

Variables		Group C	Group P	Control Group	Total
Types of Dialysis	Haemodialysis	19 (95.0%)	20 (100.0%)	20 (100.0%)	59 (98.3%)
	Peritoneal Dialysis	1 (5.0%)	0 (0.0%)	0 (0.0%)	1 (1.7%)
Frequency of Dialysis	Twice a week	13 (65.0%)	11 (55.0%)	11 (55.0%)	35 (58.3%)
	Thrice a week	6 (30.0%)	9 (45.0%)	6 (30.0%)	21 (35.0%)
	Other Specify	1 (5.0%)	0 (0.0%)	3 (15.0%)	4 (6.7%)
Period of Dialysis	< 1 Years	11 (55.0%)	15 (75.0%)	12 (60.0%)	38 (63.3%)
	1 - 2 Years	6 (30.0%)	2 (10.0%)	2 (10.0%)	10 (16.7%)
	3 - 4 Years	1 (5.0%)	2 (10.0%)	3 (15.0%)	6 (10.0%)
	> 4 Years	2 (10.0%)	1 (5.0%)	1 (5.0%)	4 (6.7%)

The above table no. 3 shows that the comparison of the mean value is statistically significant between pre and post in group C. Similarly found that the comparison of the mean value is statistically significant between pre and post in group P. Also seen that comparison of the mean value is statistically significant between pre and post in Control group.

Table No. 3: Comparison of Mean between Pre & Post test in the study participants according to the Group.

Group	Test	Mean	Standard Deviation	T test	T Table Value & Result
Group C	Pre Test	14.65	4.61	2.26	2.09 (Significant)
	Post Test	11.65	5.28		
Group P	Pre Test	18.35	6.30	11	2.09 (Significant)
	Post Test	14.8	6.40		
Control Group	Pre Test	17.3	5.20	2.85	2.09 (Significant)
	Post Test	16.7	4.80		

Table No. 4: Multiple comparison between group C, group P & Control group using Post Hoc Test.

Group (1)	Group (2)	Mean Difference	Standard Error	P Value	95% C.I. Lower	95% C.I. Upper
Control	Group C	5.05	1.80	0.019 (S)	0.71	9.39
	Group P	1.90	1.80	0.547 (NS)	-2.44	6.24
Group C	Group P	-3.15	1.80	0.197 (NS)	-7.49	1.19

The above table no.4 using the Tukey post hoc test to reveal the mean difference between the control group, an experimental group C, and experimental group P. Control and an experimental group C mean difference is 5.0500 shows the significant mean difference, the p-value is 0.019.

IV. Discussion:

In this quasi-experiment out of a total of 60 patients with chronic kidney disease patients with uremic pruritus were admitted in DKS, Post Graduate and Research Centre Raipur (C.G.), 20 patients were included in group C, 20 were included in group P & 20 were included in Control group.

In this study was found that the majority 51 (85.0%) of the patients were male, 30 (50.0%) of the patients were belonging to the age group between 18 - 44 years, 25 (41.7%) patients were Graduate and Post Graduate & 41 (68.3%) of the patients were having disease less than 2 years.

Similar results were found that the study was done by Selcuk Mistik [7] and colleagues, they found that uremic pruritus was observed more in men than women. The high prevalence of uremic pruritus in our study does not support the decrease of pruritus due to an improvement in the management of dialysis patients. Also similarly Manish Kadam et. al. [8] found that 51 (66.23%) of males and 26 (23.67%) of females were examined.

Also, this study was found that the majority 59 (98.3%) of the patients in Haemodialysis, 58.3% of the patients were taking dialysis twice a week, 38 (63.3%) of the patients were giving dialysis from last 1 year.

Similarly, Inayat Ur Rehman et.al. [9] was found that The prevalence of chronic kidney disease-associated pruritus (CKD-aP) varies from 22% to 84% among patients receiving hemodialysis. Also found that 354 patients undergoing hemodialysis were studied. 35.6% had CKD for 1-2 years, and 42.4% were receiving hemodialysis for 1-2 years.

In our study found that the group C, pre-test score was 14.65 & after using coconut oil score was 11.65, it showed a significant reduction of pruritus among CKD patients. Also see that the group P, pre test score was 18.35 & after the using Liquid Paraffin score was 14.8, it showed a significant reduction of pruritus among CKD patients. Similarly, control group, the pre-test score was 17.3 & the post-test score was 16.7, it was shown a significant reduction of pruritus among CKD patients.

Similar results were found by Daryaswanti, P [10] The result showed there was a significant reduction of pruritus among the coconut oil group (group 1) at 16.83 and liquid Liquid Paraffin group (group 2) at 20.51.

In our study shows that the comparison among coconut oil, Liquid Paraffin, and control group in terms of reducing the pruritus score revealed that the coconut oil is a statistically significant difference with the control group but coconut oil is not statistically significantly different from Liquid Paraffin oil. Also, Liquid Paraffin is not statistically significantly different from a control group.

Similar results were found by Daryaswanti, P [10] Comparison among coconut oil, liquid Liquid Paraffin, and routine care in terms of reducing the pruritus score revealed that there is a significant difference in terms of reducing pruritus at f value 104.22 and liquid Liquid Paraffin found to be the most effective with a mean difference of 3.70.

Another study was done by Erna Melastuti et.al. [11] found that there is a significant difference between the change of pruritus scale after intervention on comparison group and treatment group with value $p = 0.000$ (p -value < 0.05). VCO is effective in reducing pruritus in patients with chronic kidney diseases who are undergoing hemodialysis.

V. CONCLUSION:

This study leads to the conclusion that Coconut oil is more effective than the control group but equally effective than Liquid Paraffin among chronic kidney disease patients with pruritus. There is a trend towards benefit for Coconut oil compared to Liquid Paraffin in terms of overall therapeutic response but is inconclusive, and needs to be confirmed in larger randomized controlled trials. This study was not able to achieve its target sample size due to the limited number of patients that can be recruited for the study.

VI. RECOMMENDATION:

- An extensive research is necessary regarding uremic pruritis and topical application of liquid Liquid Paraffin and other moisturisers.
- A similar study can be replicated for larger samples,
- A similar study can be replicated in different setting for making broad generalisations.
- The true experimental research study can be conducted for other moisturisers.
- A comparative research study can be done among Rural and Urban areas.

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