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EFFECT OF TWO DIFFERENT CARE PRODUCTS ON PREVENTION OF INCONTINENCE-ASSOCIATED DERMATITIS IN PATIENTS

İNKONTİNANSLA İLİŞKİLİ DERMATİTİN ÖNLENMESİNDE İKİ FARKLI BAKIM ÜRÜNÜNÜN ETKİSİNİN İNCELENMESİ

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ABSTRACT

Objectives: Incontinent individuals continue to face a major health concern known as Incontinence-Associated Dermatitis (IAD). After a stroke or other neurological condition, the chance of developing IAD increases. Prevention of IAD is critical for maintaining skin integrity. The aim of this study was to examine the effectiveness of two different care products used in the prevention of IAD.

Material and Methods: An experimental study was conducted. Incontinent patients were randomly assigned to one of two groups: intervention (experimental group received perineal treatment with dimethicone pomade impregnated wipes, n=66) or control (control group received perineal care with soapy water, n=66). The rate of IAD was determined.

Results: During the 10-day follow-up period, 31.8% of the experimental group's patients acquired IAD, whereas 40.9% of the control group's patients got IAD. However, no significant change was observed. IAD was predominantly seen to grow on the curve between the genitals and the thigh in the experimental group (15.2%), whereas labia/scrotum was observed to develop in the control group (27.3%). According to the IAD development, there was a substantial difference in the number of semi-formed and liquid stools.

Conclusion: There was no statistical difference between the two different care products in the prevention of IAD. However, it is important to study the continuation of nursing care. It may be recommended to repeat the study in clinics where incontinence is common, with a longer follow-up.

Keywords: Incontinence, incontinence-associated dermatitis, nursing care, care products

ÖZ

Amaç: İnkontinansla ilişkili dermatit (İİD) inkontinansı olan hastalarda ciddi bir sağlık sorunu olmaya devam etmektedir. İnme veya diğer nörolojik hastalıklardan sonra İİD gelişme riski artmaktadır. İİD'nin önlenmesi, cilt bütünlüğünün kontrolünü sağlama da oldukça önemlidir. Bu araştırmanın amacı, İİD'nin önlenmesinde kullanılan iki farklı bakım ürününün etkinliğini incelemektir.

Gereç ve Yöntem: Deneysel tasarımda planlanan bu çalışmada; inkontinansı olan hastalar deney grubu (dimetikon pomad emdirilmiş mendil ile perineal bakım yapılan grup, n=66) ve kontrol grubuna (rutin olarak uygulanan sabunlu su ile perineal bakım yapılan grup, n=66) rastgele ayrıldı. İİD oranı değerlendirildi. Bu gruplara ait veriler karşılaştırıldı.

Bulgular: Hastalar 10 gün takip edildi. Deney grubundaki hastaların %31,8'inde, kontrol grubundaki hastaların %40,9'unda İİD geliştiği görüldü. Ancak, anlamlı bir fark tespit edilmedi. Deney grubunda en çok genital bölge ile uyluk arasındaki çizgide (%15,2), kontrol grubunda labia/skrotumda (%27,3) İİD geliştiği gözlendi. Sıvı ve yarı şekilli dışkılama sayısı arttıkça İİD gelişiminde istatistiksel olarak anlamlı farklılık saptandı.

Sonuç: İİD'nin önlenmesinde iki farklı bakım ürünü arasında istatistiksel olarak fark saptanmadı. Ancak hemşirelik bakımının sürdürülmesi adına bu çalışma önemlidir. Araştırmanın daha uzun süreli izlenerek inkontinansın sık görüldüğü kliniklerde tekrarlanması önerilebilir.

Anahtar Kelimeler: İnkontinans, inkontinans ile ilişkili dermatit, hemşirelik bakımı, bakım ürünleri

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INTRODUCTION

IAD is a type of incontinence-related dermatitis that causes discomfort, vesiculation, and itching in the perineal area and upper and lower hip skin because of urine or stool contact. It affects approximately 30% of neurological patients with urinary or faecal incontinence. IAD has previously been linked to incontinence in studies (1-5). Diaper change frequency, perineal skin contact time of urine or faeces, high humidity in the perineal area, deterioration of the pH structure of the skin, increased bacterial colonisation in this region, friction, used drugs, individual laboratory values, nutrition, decreased movement, changes in consciousness level, and an increase in BMI are all linked to more severe IAD (BMI). IAD skin damage is common in neurology patients (6-10). When compared with other types of skin damage, IAD is associated with a higher death rate, a worse quality of life, and greater health-care expenses, which makes IAD more urgent. IAD levels were shown to be higher in neurology patients in previous investigations (11-14). On the other hand, IAD may be avoided with good nursing care and the correct care items (7, 15-19). Perineal skin care is commonly conducted in our nation with a non-rinse wash cloth in many hospitals' perineal care protocols. The patient, patient family, and nurses, in addition to the washcloth ratio, utilise ready-to-use perineal wipes. Although numerous treatments are used to clean the perineal area, no research has been conducted to determine whether one prevents dermatitis in neurological patients who have a high rate of dermatitis (20, 21). It is clear that research conducted in other countries is aimed at evaluating the link between prevalence and incidence, as well as the variables that may play a role in the development of IAD; nevertheless, IAD is a relatively recent problem in Turkey (2, 20, 22). Although dermatitis is noticed in neurology clinics, it is clear that preventive measures are rarely used to their full potential (10, 12, 13, 21, 22). The purpose of this study was to determine whether perineal care products were more helpful in preventing incontinence-related dermatitis in patients who visited these clinics. Considering these findings, new care procedures were developed.

MATERIALS AND METHODS

Design

This experimental study was designed as an experimental study. Participants were assigned to the intervention and control groups.

Participants

The goal of the research was to determine how two different types of care items (disposable non-rinse wash cloths and dimethicone pomade cleaning wipes) affected the prevention of incontinence-related dermatitis and to inform nursing practises. The research was planned as an experimental study to determine whether perineal care with 3% dimethicone impregnated wipes may help patients with incontinence-related dermatitis who were hospitalised to neurology and neurosurgery units. Between January 2015 and March 2018, 132 individuals were asked to participate in the study. Individuals who did not match the inclusion criteria (n=564) were excluded from the study; these patients did not have incontinence, had a urinary catheter, and were able to use the restroom. The study included 132 patients who satisfied the study's inclusion criteria and were willing to participate (66 patients in the intervention group and 66 patients in the control group).

The following were the inclusion criteria: patient age 18, urine or faecal incontinence, and double incontinence, no IAD in the perineal area, no allergies in the patients, changing diapers at least four times a day, and examination within the first 24 h of arrival.

The exclusion criteria were as follows: IAD or pressure ulcer in the perineal area.

Researchers gathered data for the study between January 2015 and March 2018. Patients who were eligible for the study were informed after being admitted to the clinic, and those who agreed to participate in the study gave written authorisation, and intervention and control groups were established.

Patient Information Form: The Patient Information Form developed by the researcher in accordance with the literature data consisted of individual characteristics like the individual's income, working status, education, marital status, gender, age, place of living, and health insurance, and the variables that may affect the formation of incontinence-associated dermatitis, such as presence of chronic diseases, medical diagnosis, drugs used continuously, type of incontinence, level of mobility, and the form of nutrition (2, 3, 22).

Incontinence-Associated Dermatitis and Its Severity Instrument Scoring (IADES): The Incontinence-Associated Dermatitis Rating Scale was developed by Borchert et al. (2010), and its content validity was ensured by evaluation by seven specialist nurses. This scale is commonly used worldwide for evaluating IAD. This measurement instrument was tested with interobserver compliance, and the content validity was scored by two wound and ostomy specialist nurses. The nurse divides the perineal region into 13 regions and scores them in terms of redness, skin loss, and rash into the skin. No redness: 0 points, pink colour: 1 point, red colour: 2 points, rash: 3 points, and skin loss: 4 points. The total score to be obtained from the scale ranges from 0 to 52 (3, 7). A high score obtained from the scale indicates an increased risk and severity of dermatitis (3). The reliability and validity scales used in the study were developed by Aydın and Kaya (23).

Patient Monitoring Form: This form was created by the researcher using literature data in order to analyse the patient on a daily basis in terms of vital signs, medications used, oxygen treatment, quantity of stools, and consistency of stools (formed, semi formed, liquid, etc.).

Randomisation

For easy randomisation, the lottery approach was employed: one (for the intervention group) and two (for the control gro-

up) were inscribed on 66 cards. The cards were placed in a bag and properly mixed. The cards were chosen by lot, and the patients were divided into two groups: intervention and control. The patients, nurses, and researcher performed the intervention and measurements, and the patients identified their own groups when perineal treatment was administered to them. Blinding was not possible because of the nature of the technique. Non-rinse washcloths were used on patients who were randomly allocated to the intervention group. The control group received standard medical treatment (ie, disposable non-rinse wash cloth).

The study conducted in two phases

Phase I: Training nurses to prevent IAD

The training programme's material was created by researchers and is based on a review of the literature. The developed training content was presented to wound, ostomy, and incontinence experts and was subsequently offered to nurses in the form of face-to-face training in small groups at each clinic. An hour was given to nurses in the neurology and neurosurgery wards. Skin structure, description of IAD, aetiology and associated aspects of IAD, how to avoid IAD, and how to provide perineal care were all covered in the training programme. Nurses in these units continued to provide care in their normal routine perineal care in the control group. The patients in the control group underwent perineal treatment using a standard disposable non-rinse wash towel. Changes in this skin region were observed for 10 days using IADES and the Patient Follow-up Form after the patients were seen by the researcher every morning.

Phase II: Implementation of the research in the intervention group

After training the nurses, the second phase of the research was concluded between June 2015 and March 2018. Both groups used the same protocols for patient follow-up. The researcher conducted the first examination of the patient using the Patient Introduction Form. The patients in the intervention group underwent perineal treatment using a disposable non-rinse washcloth (with dimethicone wipes). The care of the perineum Dimethicone wipes, which were utilised in the intervention group, hydrates the skin while also protecting and providing a barrier. Changes in this skin region were observed for 10 days using IADES and the Patient Follow-up Form after the patients were seen by the researcher every morning.

Ethical considerations

The research was conducted at the neurology and neurosurgery units of three university hospitals in Istanbul. The hospital management gave written consent, and the ethics committee gave its clearance (Date: 02.12.2014, No:E-01). The families of the patients provided their informed permission.

Statistical analysis

For statistical analysis, IBM SPSS Statistics 24 software (IBM SPSS, Turkey) was used. The Shapiro-Wilk test was used to determine whether the parameters were normal. The chi-square test was used in order to compare descriptive statistical values (mean, standard deviation), qualitative data, and normally distributed parameters between the groups. The time-causing difference was determined using the Fisher Exact Test. To compare qualitative data, the chi-square test was applied. The significance level was set at $p<0.05$.

RESULTS

Comparison of the intervention and control groups' demographic and disease characteristics

The patients in the control and intervention groups were 62.77±13.45 and 65.82±10.70 years old, respectively, on average. The gender, degree of consciousness, presence and type of chronic illnesses, mobility, diet, BMI, and several laboratory values of patients in the intervention and control groups were similar, with no statistically significant differences ($p>0.05$). In this context, as can be seen in Table 1, both groups are correlated.

Presence, Type, and Duration of Incontinence in Patients

It was observed that 34.8% and 25.8% of the patients in the intervention and control groups, respectively, had no incontinence before admission to the hospital. It was determined that 65.2% urine was observed to be the highest in the intervention group before admission to the hospital and that both types of incontinence was 71.2% during admission to the hospital. Similarly, it was observed in the control group that 70.6% urinary incontinence had the highest priority for admission to the hospital and that each incontinence was 74.2% during admission to the hospital. No statistically significant difference was determined between both groups in terms of the presence, type, and average duration of incontinence ($p>0.05$). The findings are summarised in Table 2.

Comparison of the Development IAD

When IAD development was examined between both groups, it was determined that it developed in 31.8% and 40.9% of the patients in the control and intervention groups, respectively, and that the mean IAD total score was 2.92 in the control group and 2.52 in the intervention group. However, although IAD development and IAD score were higher in the control group, no statistically significant difference was determined ($p>0.05$). The findings showing the IAD development rates are summarised in Table 3.

It was determined that the development regions of IAD were not different in both groups. It was also observed that IAD mostly developed in the genital region (labia/scrotum) and the fold between the genital and femur (18.2%), right front inner femur (11.4%), and left front (10.6%).

Comparison of IAD Development by Individual and Disease Characteristics of Patients

Table 4 shows the elements that contribute to IAD and its progression. Some laboratory values, such as age, gender, BMI, level of consciousness, presence of incontinence before admission to the hospital, presence of chronic disease, movement, nutrition, haemoglobin, haematocrit, and IAD development, were not

Table 1: Comparison of the demographic and disease characteristics of the intervention and control groups

Demographic and disease characteristics		Intervention (N=66)	Control (N=66)	Total (N=132)	Chi-square test	
		N (%)	N (%)	N (%)	X^2	p- value
Gender	Female	50 (75.8)	44 (66.7)	94 (71.2)	1.330	0.168
	Male	16 (24.2)	22 (33.3)	38 (28.8)		
Consciousnes status	Opened	48 (72.7)	44 (66.7)	92 (69.7)	0.624	0.732
	Closed	8 (12.1)	9 (13.6)	17 (12.9)		
	Confused	10 (15.2)	13 (19.7)	23 (17.4)		
Diagnosis	schemic Serebrovascular Disease	23 (34.8)	15 (22.7)	38 (28.8)	10.863	0.145
	Cerebrovascular Disease	32 (48.5)	35 (53.0)	67 (50.8)		
	Multiple Sklerozis	5 (7.6)	4 (6.1)	9 (6.8)		
	ADEM (Acute Demyelinated Ensafloapatia)	1 (1.5)	2 (3.0)	3 (2.3)		
	Spinalcord injury	1 (1.5)	4 (6.1)	5 (3.8)		
	Parkinson Disease	4 (6.1)	1 (1.5)	5 (3.8)		
	Brain Tumour	0 (0)	4 (6.1)	4 (3.0)		
	Julian Barré Disease	0 (0)	1 (1.5)	1 (0.8)		
Chronic Disease	Yes	59 (89.4)	49 (74.2)	108 (81.8)	5.093	0.020
	No	7 (10.6)	17 (25.8)	24 (18.2)		
Chronic disease types	Multiple Sklerozis	4 (6.1)	3 (4.5)	7 (5.3)	0.15	0.500
	Hypertension	50 (75.8)	37 (56.1)	87 (65.9)	5.698	0.014
	Diabetes Mellitus	25 (37.9)	25 (37.9)	50 (37.9)	0.000	0.571
	Coronary Artery Disease	5 (7.6)	3 (4.5)	8 (6.1)	0.532	0.359
	Hypothyroidism	2 (3.0)	7 (10.6)	9 (6.8)	2.981	0.082
	Kidney Disease	1 (1.5)	0 (0.0)	1 (0.8)	1.008	0500
	Heart Failure Disease	17 (25.8)	9 (13.6)	26 (19.7)	3.065	0.062
	Parkinson Disease	2 (3.0)	2 (3.0)	4 (3.0)	0.000	0.690
	Demans Disease	1 (1.5)	3 (4.5)	4 (3.0)	1.031	0.310
Mobility	Completely immobile	3 (4.5)	1 (1.5)	4 (3.0)	1.483	0.476
	Very limited	8 (12.1)	11 (16.7)	19 (14.4)		
	Slightly limited	55 (83.3)	54 (81.8)	109 (82.6)		
Nutrition status	Oral	46 (69.7)	35 (53.0)	81 (61.4)	5.374	0.068
	Enteral	19 (28.8)	31 (47.0)	50 (37.9)		
	Parenterally	1 (1.5)	0 (0.0)	1 (0.8)		
		Intervention (N=66) Mean (SD)	**Control (N=66) Mean (SD)**	**Total (N=132) Mean (SD)**	**Student t-testi**	
					t	**p- value**
Biochemistry tests	Haemoglobin (mg/dl) (Min.-Max.)	12.04 (1.63) (9.30-15.10)	11.87 (1.78) (5.1-16.3)	11.95 (1.70) (5.1-16.3)	0.570	0.570
	Hemotokrit (%) (Min-Max)	35.11 (5.31) (27-45.10)	35.90 (4.99) (24-49.6)	35.50 (5.15) (24.0-49.6)	0.878	0.381
	Albumin (mg/dl) (Min-Max)	3.37±0.56 (2.07-4.40)	3.43±0.46 (2.4-4.5)	3.40 (0.51) (2.1-4.5)	0.655	0.513
Age/Years (Mean±SD)		65.82 (10.70)	62.77 (13.45)	64.30 (12.20)	1.440	0.155
BMI		26.19 (4.26)	26.04 (4.02)	26.11 (4.13)	0.208	0.836

BMI: Body mass index, Min.: Minimum, Max.: Maximum, SD: Standard deviation, p<0.05.

Table 2: Presence, type, and duration of incontinence in patients

		Intervention (n=66)	Control (n=66)	Total (N=132)	Chi-square test	
		N (%)	N (%)	N (%)	X^2	p-value
Before hospital presence of incontinence	Yes	23 (34.8)	17 (25.8)	40 (30.3)	1.291	0.172
	No	43 (65.2)	49 (74.2)	92 (69.7)		
Before hospital types of incontinence	Urine incontinence	15 (65.2)	12 (70.6)	27 (67.5)	0.784	0.676
	Faecal incontinence	1 (4.3)	0 (0.0)	1 (2.5)		
	Double incontinence	7 (30.4)	5 (29.4)	12 (30.0)		
Admission to hospital types of incontinence	Urine incontinence	8 (12.1)	4 (6.1)	12 (9.1)	1.497	0.473
	Faecal incontinence	11 (16.7)	11 (16.7)	22 (16.7)		
	Double incontinence	47 (71.2)	51 (77.3)	98 (74.2)		
Duration of before to hospital Mean (SD/ month)		**Intervention (n=66) Mean (SD)**	**Control (n=66) Mean (SD)**	**Total (N=132) Mean (SD)**	**Student t-testi**	
					t	**p-value**
		22.30 (19.08)	30.00 (27.19)	25.68 (23.01)	1.065	0.294

SD: Standard deviation, p<0.05

Table 3: Comparison of Development IAD

		Intervention group (n=66)	Control group (n=66)	Total (N=132)	Chi-square test	
		N (%)	N (%)	N (%)	X^2	p-value
IAD	Yes	21 (31.8)	27 (40.9)	48 (36.4)	1.179	0.183
	No	45 (68.2)	39 (59.1)	84 (63.6)		
IAD development day	2nd day	5 (23.8)	4 (14.8)	9 (18.8)	3.256	0.776
	3rd day	2 (9.5)	6 (22.2)	8 (16.7)		
	4th day	5 (23.8)	4 (14.8)	9 (18.8)		
	5th day	2 (9.5)	4 (14.8)	6 (12.5)		
	6th day	2 (9.5)	4 (14.8)	6 (12.5)		
	7th day	2 (9.5)	3 (11.1)	5 (10.4)		
	8th day	3 (14.3)	2 (7.4)	5 (10.4)		
		Intervention (N=66) Mean (SD)	**Control (N=66) Mean (SD)**	**Total (N=132) Mean (SD)**	**Student t-testi**	
					t	**p-value**
Total IADES	Mean (SD) (Min.-Max.)	2.524 (2.657) (1-12)	2.926 (2.986) (1-13)	2.75 (2.825) (1-13)	-0.485	0.630

IAD: Incontinence-associated dermatitis; IADES: Incontinence-associated dermatitis evaluation scores; SD: Standard deviation, p<0.05.

significantly different between the groups (p>0.05). The ratio of IAD development was higher in patients with perspiration in the control and intervention groups, and there was a statistically significant difference (p<0.05). While there was no statistically significant difference in IAD development between the two groups in terms of haemoglobin and hemotocrit levels, IAD development was higher in patients with low albumin levels in the control group, and this difference was statistically significant. It was also shown that in the intervention group, patients taking anticoagulant and antidiabetic medication developed IAD at a greater rate, with a statistically significant difference (p0.05). In the control group, individuals receiving antibiotic therapy had a greater rate of IAD development (51.9%) than those who did not, and the difference was statistically significant (p≤0.05).

Comparison of IAD Development According to the number of stool of patients

When IAD development according to the number of stools of patients was examined, the average number of daily stools was 1.46 times/day in patients with IAD development in the intervention group and 1.12 times/day in patients with IAD development in the control group. However, the average number of liquid stools of patients with IAD development was 2.48 times/day in the intervention group and 2.26 times/day in the control group, and the average number of semi-formed stools was 5.57

Table 4: Comparison of IAD development by individual and disease characteristics of patients

Individual and disease characteristics		Intervention				Control			
		IAD No (n=45)	IAD Yes (n=21)	Chi-square test		IAD No (n=39)	IAD Yes (n=27)	Chi-square test	
		N (%)	N (%)	X^2	p-value	N (%)	N (%)	X^2	p-value
Gender	Female	33 (73.3)	17 (81.0)	0.453	0.365	27 (69.2)	17 (63.0)	0.282	0.394
	Male	12 (26.7)	4 (19.0)			12 (30.8)	10 (37.0)		
BMI	Normal weight	22 (48.9)	8 (38.1)	0.911	0.634	15 (38.5)	14 (51.9)	1.562	0.458
	Overweight	16 (35.6)	10 (47.6)			16 (41.0)	10 (37.0)		
	Obesity	7 (15.6)	3 (14.3)			8 (20.5)	3 (11.1)		
Consciousness Status	Opened	35 (77.8)	13 (61.9)	2.139	0.343	29 (74.4)	15 (55.6)	2.545	0.280
	Closed	5 (11.1)	3 (14.3)			4 (10.3)	5 (18.5)		
	Confused	5 (11.1)	5 (23.8)			6 (15.4)	7 (25.9)		
Incontinence before admission	No	28 (62.2)	15 (71.4)	0.535	0.328	31 (79.5)	18 (66.7)	1.371	0.188
	Yes	17 (37.8)	6 (28.6)			8 (20.5)	9 (33.3)		
Chronic Disease Types	Yes	39 (86.7)	20 (95.2)	1.110	0.278	30 (76.9)	19 (70.4)	0.358	0.375
	No	6 (13.3)	1 (4.8)			9 (23.1)	8 (29.6)		
Incontinence admission to the hospital	Urine	6 (13.3)	2 (9.5)	3.165	0.205	3 (7.7)	1 (3.7)	5.691	0.058
	Faecal	5 (11.1)	6 (28.6)			3 (7.7)	8 (29.6)		
	Double	34 (75.6)	13 (61.9)			33 (84.6)	18 (66.7)		
Mobility	Completely immobile	2 (4.4)	1 (4.8)	1.411	0.494	1 (2.6)	0 (0.0)	3.378	0.185
	Very limited	4 (8.9)	4 (19.0)			4 (10.3)	7 (25.9)		
	Slightly limited	39 (86.7)	16 (76.2)			34 (87.2)	20 (74.1)		
Nutritional status	Oral	33 (73.3)	13 (61.9)	2.632	0.268	20 (51.3)	15 (55.6)	0.117	0.464
	Enteral	12 (26.7)	7 (33.3)			19 (48.7)	12 44.4		
	Parenterally	0 (0.0)	1 (4.8)			0 (0.0)	0 (0.0)		
Perspretion	Yes	5 (41.7)	7 (58.3)	4.753	0.036	3 (21.4)	11 (78.6)	10.427	0.002
	No	40 (74.1)	14 (25.9)			36 (69.2)	16 (30.3)		
Anticoagulants medication	Yes	37 (82.2)	21 (100)	4.248	0.038	35 (89.7)	24 (88.9)	0.012	0.608
	No	8 (17.8)	0 (0.00)			4 (10.3)	3 (11.1)		
Antidiabetic medication	Yes	18 (40)	14 (66.7)	4.076	0.039	16 (41.0)	10 (37.0)	0.106	0.474
	No	27 (60.0)	7 (33.3)			23 (59.0)	17 (63.0)		
Antibiotics medication	Yes	18 (40)	9 (42.9)	0.048	0.517	9 (23.1)	14 (51.9)	5.818	0.016
	No	27 (60)	12 (57.1)			30 (76.9)	13 (48.1)		
				Student's t-test				Student's t-test	
				t	p value			t	p value
Age	Mean (SD)	65.76 (11.00)	65.95 (10.28)	0.069	0.945	62.46 (14.04)	63.22 (12.80)	0.224	0.823
	Min.-Max.	36.0- 81.0	31.0- 79.0			36.0 -85.0	36.0 -90.0		
HGB	Mean (SD)	12.12 (1.57)	11.85 (1.78)	0.629	0.532	11.9 (71.57)	11.73 (2.07)	0.539	0.592
	Min.-Max.	9.3-14.7	9.3-15.1			8.4-15.5	5.1-16.3		
HCT	Mean (SD)	35.39 (5.39)	34.50 (5.23)	0.627	0.533	36.32 (4.63)	35.28 (5.49)	0.835	0.407
	Min.-Max.	27.0-44.6	28.0-45.1			28.0-48.7	24.0-49.6		
Albumin	Mean (SD)	3.38 (0.57)	3.36 (0.55)	0.072	0.943	3.54 (0.44)	3.28 (0.45)	2.331	0.023
	Min.-Max.	2.1-4.4	2.1-4.3			2.6-4.5	2.4-3.9		
Duration of Incontinence before admission (month)	Mean (SD)	21.88 (18.56)	23.50 (22.30)	-0.175	0.863	21.56 (19.17)	38.44 (32.29)	-1.349	0.196
	Min..-Max.	1.0-48.0	1.0-60.0			1.0-48.0	2.0-96.0		

IAD: Incontinence-associated dermatitis, HGB: Hemoglabin, HCT: Hemotocrit, Min.: Minumum, Max.: Maximum, SD: Standard deviation, p<0.05.

Table 5: Comparison of IAD development according to the number of stools of patients

	Intervention		Student's t-test		Control		Student's t-test	
	IAD No (n=45)	IAD Yes (n=21)	t	p-value	IAD No (n=39)	IAD Yes (n=27)	t	p-value
	Mean (SD)	Mean (SD)			Mean (SD)	Mean (SD)		
Number of stools	1.19 (0.74)	1.46 (1.04)	-1.208	0.231	1.12 (0.58)	1.22 (0.65)	-0.658	0.513
Liquid stools	1.38 (2.64)	2.48 (3.25)	-1.461	0.149	0.67 (1.72)	2.26 (3.37)	-2.520	0.030
Semi-formed stools	6.47 (2.77)	5.57 (3.01)	1.190	0.238	7.69 (2.40)	6.26 (3.08)	2.122	0.038
Formed stools	0.13 (0.41)	0.14 (0.66)	-0.073	0.942	0.10 (0.31)	0.04 (0.19)	0.981	0.291

SD: Standard deviation, p<0.05.

times/day in the intervention group and 6.26 times/day in the control group. The IAD development status according to the average number of stools is presented in Table 5.

DISCUSSION

IAD prophylaxis is critical for avoiding the development of additional advanced skin issues, such as pressure sores caused by incontinence. The increased variety of products used in perineal skin care nowadays produces uncertainty as to which product the nurse prefers. The major goal of this study was to determine how much dermatitis was averted using incontinence care wipes with non-rinse disposable soapy water and 3% dimethicone.

When disease and individual characteristics of patients in the control and intervention groups were examined, such as the type of incontinence and when it began, it was discovered that there was no difference between the two groups. The similarity of person and disease features guaranteed that these factors that may be effective in the development of IAD were minimised.

IAD may create other major complications in patients if it is not avoided in the near term. The most serious of these issues is pressure sores, which can lead to profound tissue damage (9, 24-27). In nursing, soapy water has been used for the cleaning of the perineal region from the past to the present. Perineal care with soapy water has been shown to be the most known and reliable method used in the removal of microorganisms in the body and the cleaning of harmful pathogens. However, non-rinse wash clothes have emerged and are commonly used to facilitate patient care because the direct use of solid or liquid soaps damages the skin pH. Wet wipes are another product that makes life simpler for people. Ordinary wet wipes, on the other hand, are ineffective in preventing IAD. It has been claimed that wipes containing specific ingredients such as dimethicone prevent the onset of IAD (7). When the rates of IAD development in the literature are examined, they vary between 5% and 52% (7, 28). In the study in which Coyer et al., compared two different perineal skin hygiene protocols, it was observed that perineal dermatitis developed in 15% of the intervention group and 32.8% of the control group (29). In a study conducted with 3406 patients, Boronat-Garrido et al. reported that IAD developed in 5.2% of the incontinence patients with urine, stool or both of them (30). It was determined that IAD developed in 31.8% of the intervention group and 40.9% of the control group. This finding is parallel to a similar study in which a wipe with soapy water and 3% dimethicone with a pH in the range of 6.5-7.5 was compared (IAD developed in 22.3% of the intervention group and 22.8% of the control group). The IADES score indicates the severity of dermatitis. As the IADES score increases, skin damage increases (3). The measurement tools for determining IAD and severity are not standard and the mean scores are different (3, 7, 16). In the studies within this scope, IAD development levels are higher than the IAD score (2, 22, 31). Dermatitis occurs because of skin contact with urine and/or stool. However, there is not enough evidence on how long dermatitis develops (22). In some literature, it is seen to develop on day 4 (2, 22) and on day 13 (32). It usually developed on days 2 and 4 (23.8%) in the intervention group and between days 2 and 6 (14.8% -22.2%) in the control group, according to the findings of this study. These findings were found to be consistent with previous prevalence and incidence studies compared with the literature.

Several variables contribute to the development of IAD. Bliss et al. found that the patient's level of awareness and the frequency of liquid or semi-liquid faeces are two major factors in the development of IAD in prospective research with ICU patients (2). Skin exposure to urine and/or faeces is the most important element in the development of IAD. Many variables such as age, female gender, high BMI, nutritional deficiency, limitation of movement activity, closed or confused consciousness, liquid stools, faecal incontinence, low albumin level, use of antibiotics, steroids, or vasopressor drugs have been reported in recent studies examining IAD and the factors affecting it (20, 31, 33). In this study, no statistically significant difference was found between laboratory values such as age, gender, form of nutrition, movement level, type of incontinence, presence and duration of prior incontinence, HGB, HCT, and IAD development status in patients with chronic disease. However, in accordance with the literature, IAD development was higher in patients receiving antithrombotic and antidiabetic treatments in the intervention group. In the control group, IAD was higher in patients receiving antibiotic treatment. It is expected that the use of antibiotics may increase gastrointestinal motility and that the vascular structure of patients receiving antrombolytic and antidiabetic medications may be affected. According to these findings and the literature, it was predicted that taking into consideration the relevant risk variables would improve

diagnostic abilities and that persons in risk groups would be diagnosed more According to these findings and the literature, it was predicted that taking into consideration the relevant risk variables would improve diagnostic abilities and that persons in risk groups would be diagnosed more extensively.

IAD is caused by urine and/or faeces coming into contact with the skin in the perineal region (33). In this context, the type of incontinence is also the most critical factor influencing dermatitis development. It is claimed that in the development of IAD, faecal incontinence is the most important risk factor (19, 31) and that dermatitis develops more rapidly in patients with faecal incontinence than in individuals with urine incontinence. According to some studies, liquid stools increase the development of dermatitis by five times more than solid stools (6, 19, 28). This is explained by the fact that undigested nutrients and digestive enzymes (proteases and lipases) in the liquid stool cause damage to intercellular proteins and by the increased permeability of the skin (31). In their study, Campbell et al. showed that there was no difference between the development of dermatitis according to the incontinence type (faecal or urinary incontinence) despite the development of dermatitis in 10% of the sample group (9). In the same study, it was reported that dermatitis was observed in 50% of patients with liquid or soft stool consistency. Dermatitis occurs in 44.7% of the patients with 3 or more stools in a day. However, no significant relationship was found between the number of stools and incontinence-associated dermatitis (9). In their study conducted with intensive care patients, Chianca et al. showed that the development of IAD was higher in patients with liquid stools than in those without liquid stools (34). In the study in which Van Damme et al. examined the factors that may be effective in the development of severe IAD, they identified liquid stool as one of the most important factors in the development of IAD, reporting that 25.2% of patients with liquid stool of 1-3 days and 21.4% of patients with liquid stool of 4-6 days had IAD (31). This study's finding of a greater rate of IAD development in patients with liquid stool supports previous research.

Limitations

There are a few limitations to this study. The first of these is the fact that the study was conducted only with patients undergoing treatment and care in the neurology clinic and that the results are generalisable only for this group. The second limitation is that the prevalence and incidence studies were not conducted before the study.

CONCLUSION

Although no significant difference was observed statistically between the two products in terms of preventing IAD, the importance of nursing care in preventing IAD with frequent perineal care was identified in this study. This study is highly essential in terms of exposing the need for excellent nursing care at a time when nurses do not want to perform various care practises such as perineal care.

As a result of the findings, it may be advised that prevalence and incidence studies of IAD be conducted in high-risk groups in our nation, that nurses be made more aware of this issue, and that perineal care methods be compared.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of İstanbul University-Cerrahpaşa University (Date: 02.12.2014, No:E-01).

Informed Consent: Written informed consent was obtained from families of the patients who participated in this study.

Peer Review: Externally peer-reviewed.

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