

Incontinence-associated dermatitis in elderly patients: prevalence and risk factors

Dermatite associada à incontinência em idosos: prevalência e fatores de risco

Dermatitis relacionada a la incontinencia en ancianos hospitalizados

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How to cite this article:

Ferreira M, Abbade L, Bocchi SCM, Miot HA, Villas Boas P, Guimaraes HQCP. Incontinence-associated dermatitis in elderly patients: prevalence and risk factors. Rev Bras Enferm 2020;73(Suppl 3):e20180475.

doi: <http://dx.doi.org/10.1590/0034-7167-2018-0475>

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EDITOR IN CHIEF: Antonio José de Almeida Filho

ASSOCIATE EDITOR: Mitzy Reichembach

Submission: 06-25-2018

Approval: 10-23-2018

ABSTRACT

Objective: To determine the prevalence and risk factors for incontinence-associated dermatitis in the elderly. **Method:** Cross-sectional exploratory study carried out in public hospitals. The dermatitis prevalence and associations were obtained by calculating the ratio. The effect dimension was estimated by the odds ratio with a 95% confidence interval and statistical significance $p < 0.05$. **Results:** 138 elderly people were included, with an average age of 77.2 years old (± 9.3); 69 (50%) had combined fecal and urinary incontinence. The dermatitis prevalence was 36.2% (50); 28% (14) had pressure injuries; 14% (7), candidiasis. Risk factors were: longer hospital stay (Odds Ratio = 5.8 [2.6-12.9]), obesity (Odds Ratio = 3.6 [1.2-10.4]), high level of dependence (Odds Ratio = 2.4 [1.1-5.0]) and high risk for pressure injury (Odds Ratio = 6.1 [1.4-26.9]). **Conclusion:** The study found a high prevalence of dermatitis associated with incontinence. The early recognition of risk factors favors effective preventive actions.

Descriptors: Dermatitis; Diaper Rash; Aged; Prevalence; Risk Factors.

RESUMO

Objetivo: Determinar prevalência e fatores de risco para dermatite associada à incontinência em idosos. **Método:** Estudo transversal exploratório realizado em hospitais públicos. Obteve-se prevalência da dermatite e associações pelo cálculo da razão. A dimensão do efeito foi estimada pela razão de chances com intervalo de confiança de 95% e significância estatística $p < 0,05$. **Resultados:** Incluíram-se 138 idosos, média de idade 77,2 anos ($\pm 9,3$); 69 (50%) com incontinência fecal e urinária combinadas. A prevalência de dermatite foi 36,2% (50); 28% (14) apresentavam lesão por pressão; 14% (7), candidose. Foram fatores de risco: maior tempo de internação (Odds Ratio = 5,8 [2,6-12,9]), obesidade (Odds Ratio = 3,6 [1,2-10,4]), alto nível de dependência (Odds Ratio = 2,4 [1,1-5,0]) e alto risco para lesão por pressão (Odds Ratio = 6,1 [1,4-26,9]). **Conclusão:** Houve alta prevalência de dermatite associada à incontinência. O reconhecimento precoce dos fatores de risco favorece ações preventivas efetivas.

Descritores: Dermatite; Dermatite das Fraldas; Idoso; Prevalência; Fatores de Risco.

RESUMEN

Objetivo: Determinar prevalencia y factores de riesgo para dermatitis relacionada a la incontinencia y sus relaciones en ancianos. **Método:** Estudio transversal exploratorio con ancianos incontinentes en hospitales públicos. Se obtuvo la prevalencia de la dermatitis y relaciones por el cálculo de la razón, y la dimensión del efecto ha sido estimada por la razón de oportunidades con intervalo de confianza de 95% y significación estadística $p < 0,05$. **Resultados:** Se incluyeron 138 ancianos, la edad promedio de 77,2 años ($\pm 9,3$); 69 (50%) de ellos, con incontinencia fecal y urinaria combinadas. La prevalencia de dermatitis ha sido 36,2% (50); 28% (14) presentaban lesión por presión; y 14% (7), candidosis. Han sido factores de riesgo para la dermatitis: mayor tiempo de internación (OR = 5,8 [2,6-12,9]), obesidad (OR = 3,6 [1,2-10,4]), alto nivel de dependencia (OR = 2,4 [1,1-5,0]) y alto riesgo para lesión por presión (OR = 6,1 [1,4-26,9]). **Conclusiones:** Hubo alta prevalencia de dermatitis relacionada a la incontinencia, y el reconocimiento precoz de los factores de riesgo puede favorecer acciones preventivas efectivas.

Descritores: Dermatitis; Dermatitis del Pañal; Anciano; Prevalencia; Factores de Riesgo.

INTRODUCTION

Diaper dermatitis, formerly known as ammoniacal dermatitis, irritant dermatitis, primary irritative dermatitis, perineal dermatitis, was renamed after expert consensus, in 2007, for incontinence-associated dermatitis (IAD). An inflammatory dermatosis characterizes erythema, exudation, and exulceration that affects the perineum, gluteal region, lower abdomen, and thigh. It causes chronic exposure of the skin to urinary or fecal materials⁽¹⁻²⁾.

IAD is the most common type within the spectrum of skin lesions associated with moisture, which are IAD, peristomal dermatitis, intertrigo, and periorificial dermatitis, caused by moisture from different sources - respectively, fecal or urinary incontinence, peristomal drainage, sweating and wound drainage⁽³⁾.

In the elderly, this dermatitis has significant implications for quality of life and reflects the quality of care offered. It relates to increased morbidity of elderly hospitalized patients, causing pain and an increased risk to develop pressure sore (PS), especially in patients with fecal incontinence and a higher level of immobility⁽⁴⁾.

Senior years are accompanied by skin fragility due to changes in skin turgor and hydration, decreased immune function, reduced subcutaneous fat, impaired sensory perception, and increased level of functional dependence. Therefore, as the person ages, the risk to develop skin lesions increases⁽⁴⁾. Furthermore, urinary and fecal incontinence is highly prevalent among the elderly and correlates with the detriment of mobility and cognitive function⁽⁵⁾. This evidence can contribute to the onset or worsening of IAD.

The early prevention, detection, and treatment of IAD is a challenge that remains to be explored. It requires nursing professionals to act, understand physiological aspects of the skin and intensify care through the nursing process, along with evidence-based protocols, to maintain and restore skin integrity.

OBJECTIVE

To determine, concerning hospitalized elderly with IAD, the prevalence, clinical characteristics, risk factors, and associations for its development, as well as to identify the preventive measures used. This study hypothesizes that there is a high prevalence of IAD in hospitalized elderly patients.

METHOD

Ethical aspects

After approval by the studied locations, in December 2015, a favorable opinion was granted by the Research Ethics Committee (CEP) of the Botucatu School of Medicine (FMB) of the Universidade Estadual Paulista Júlio de Mesquita Filho (UNESP), Botucatu-SP.

Design, period and place of study

This research is a cross-sectional and exploratory study, guided by the STROBE⁽⁶⁾. The investigation was carried out from December 2015 to July 2016, in two public hospitals in the interior of the state of São Paulo. In one institution, the medical (41 beds) and surgical (41 beds) units were studied; in the other, the long-term care unit (25 beds). Institutions were conveniently selected.

Population or sample; criteria of inclusion and exclusion

The minimum sample size was 140 patients, considering the 23% prevalence of incontinence in elderly patients⁽⁷⁾ and margin of error of 7%, reliability of 95%.

The inclusion criteria were men and women being 60 years old or more, hospitalized for at least 24 hours, having urinary and fecal incontinence, and who agreed to participate by signing the Informed Consent Form (ICF). Patients excluded were the ones: using an indwelling urinary catheter, another urinary diversion or anuria, and who had concomitant intestinal constipation, colostomy or other intestinal diversions for eliminations, due to the absence of any type of contact with an irritative agent (feces or urine) in the diaper area.

Study Protocol

The data were collected using an instrument developed and filled out by the researcher, composed of sociodemographic, clinical and skincare data; consultation of electronic medical records (E-Pront[®]); and physical examination of the diaper region (anteroposterior), possibly registering digital photographic of the diaper regions in patients with suggestive presence of IAD, which authorized capturing the image. A dermatologist helped in establishing the diagnosis. There were no refusals during data collection. When requested, the genitalia were protected during photographic recording.

The cut-off point for the length of stay was considered below or above 15 days, considering 15 days as above average, which characterizes prolonged hospitalization, increases in hospital costs with a higher risk to complications⁽⁸⁾.

The value of the body mass index (BMI) was obtained as a secondary data of the medical record calculated by nutritionists of the institution. The calculation was done by dividing the weight (in kilograms) by the height (in meters) squared or by calculating the BMI estimated in the case of bedfast patients. The investigation considered underweight BMI values under 23 kg/m² and obese those with values over 30 kg/m², as defined by the Pan American Health Organization (PAHO)⁽⁹⁾.

Functional capacity or dependence level was demonstrated by the Independence in Activities of Daily Living Scale or Katz Index, which scores the performance of the elderly individual in self-care activities, such as feeding, sphincter control, transferring, personal hygiene, dressing and showering ability. Independent patients were those with a score of 6; moderate dependence, 3 to 5; and very dependent, 2 or less⁽¹⁰⁾.

As for the duration of contact with the irritative agent and frequency of diaper change, cut-off points were: immediate change up to 2 hours; diaper change over 2 to 6 hours; diaper change over 6 hours; considering that the ideal would be the immediate change in episodes of fecal incontinence, up to 2 hours for diuresis only, or if saturation of the diaper, indicated by the reagent tape.

The risk to PS was estimated by the Braden Scale, which is widely used, internationally recognized, and validated in Brazil. The considered values are severe high risk (≤ 9), high risk (10 to 12), moderate risk (13 to 14), mild risk (15 to 18), and no risk (> 18)⁽¹¹⁾.

Analysis of results and statistics

Data on the prevalence of IAD and its associations were obtained by calculating the ratio between all cases (new or not) observed at the time of data collection. Quantitative variables were represented by their means and standard deviations or medians and quartiles (p25-p75), according to the Kolmogorov-Smirnov normality test (Lilliefors). Their comparison between groups was tested by the Student's *t* or Mann-Whitney tests. Categorical and ordinal variables were represented by their percentages and compared between groups using the chi-square, Fisher's exact, and trend chi-square tests. The effect dimension (risk factors) was estimated by the odds ratio (OR) and its 95% confidence interval. Data were tabulated and analyzed using the IBM SPSS 22 software. Statistical significance was defined as values of $p < 0.05$.

RESULTS

The investigation included 138 incontinent patients, 118 (85.5%) admitted to the medical clinic, 12 (8.7%) to the surgical clinic, and 8 (5.8%) to a long-term care unit. The types of incontinence were combined urinary and fecal in 69 patients (50%), fecal in 35 (25.4%), and urinary in 34 (24.6%). Female patients were predominant - 75 (54.3%); mean age of 77.2 ± 9.3 years old, with predominant skin color, white, 92 (66.7%). The main reasons for hospitalization were pneumonia/nonneoplastic lung diseases in 28 participants (20.3%), Cerebrovascular accident (CVA)/neurological diseases in 17 (12.3%) and gastrointestinal diseases in 17 (12.3%). Regarding the presence of comorbidities, 69.6% of the patients had systemic arterial hypertension, and 45.7%, diabetes *mellitus*. The average BMI was $24.6 \pm 5.4 \text{ kg/m}^2$. 56 (40.6%) of patients within the eutrophic category; 46 (33.3%), underweight; and 21 (15.2%) were obese. The elderly' dependence level, according to the Katz Index, showed that 72 (52.2%) were highly dependent, and 66 (47.8%) were moderately dependent. Of the total number of patients evaluated, 29 of them (21.0%) had PS regardless of the existence or not of IAD.

The general prevalence of IAD was 36.2% (50 patients), and the highest prevalences were in the long-term care unit (50% [4]) and medical unit (36.4% [43]). Of the patients with AIA, 28% (14) also had PS, and 14% (7), candidosis. There was no statistically significant association between the presence of PS and IAD ($p = 0.19$).

The most prevalent symptoms were burning in 24 (33%), pain in 23 (32%), and itching in 17 (23%). The most frequent dermatological signs were erythema in 52 (32%); maceration in 25 (16%); pustules in 23 (14%); and exulceration in 16 (10%). The affected anatomical regions, regardless of overlapping each other, were: inguinal in 42 patients (22%); inner thigh in 32 (16%); lateral side of the thigh in 21 (11%); glutes in 18 (9%); lateral side of the hips in 15 (8%), among others. Figure 1 refers to the photographic record of a patient who had IAD associated with candidosis.

Table 1 shows results related to intrinsic factors and their associations with IAD. There was a statistically significant association with IAD, obesity (OR = 3.6 [1.2-10.4]), high level of dependence (OR = 2.4 [1.1-5.0]), very high risk to PS according to the Braden Scale [OR = 6.1 (1.4-26.9)].



Figure 1 - Incontinence-associated dermatitis - acute inflammatory phase associated with candidosis, perianal, gluteal, and sacral region

Table 1 - Intrinsic factors and distribution of incontinence-associated dermatitis (IAD) in two public hospitals in the city of Bauru, São Paulo, Brazil, Jan - Aug 2016

Variable	IAD n %		Odds Ratio (IC95%)
	No	Yes	
n	88	50	
Average age (years)			1.00 (0.9-1.0)
Gender			0.79 (0.3-1.5)
Female	46 (52.3)	29 (58.0)	
Male	42 (47.2)	21 (42.0)	
Diabetes mellitus	39 (44.3)	24 (48.0)	1.16 (0.5-2.3)
BMI			
Normal weight	43 (48.9)	13 (26.0)	
Underweight	26 (29.5)	20 (40.0)	2.5 (1.0-5.9)
Overweight or pre-obesity	9 (10.2)	6 (12.0)	2.2 (0.6-7.3)
Obese	10 (11.4)	11 (22.0)	3.6 (1.2-10.4) †
Type of incontinence			
Urinary	26 (29.5)	8 (16.0)	
Fecal	21 (23.9)	14 (28.0)	2.2 (0.7-6.1)
Combined fecal and urinary	41 (46.6)	28 (56.0)	2.2 (0.8-5.6)
Type of effluent			
Urine	25 (28.4)	8 (16.0)	
Solid Stool	28 (31.8)	12 (24.0)	1.33 (0.4-3.8)
Mushy stool	23 (26.1)	19 (38.0)	2.58 (0.9-7.0)
Watery stool	6 (6.9)	7 (14.0)	3.64 (0.9-14.0)
No information	6 (6.9)	4 (8.0)	
Dependency level			
Very dependent	39 (44.3)	33 (66.0)	2.4 (1.1-5.0) †
Moderate dependence	49 (55.7)	17 (34.0)	
Independent	0 (0.0)	0 (0.0)	
Braden Index			
Severe risk	3 (3.4)	8 (16.0)	6.1 (1.4-26.9) †
High Risk	25 (28.4)	19 (38.0)	1.7 (0.7-4.2)
Moderate risk	30 (34.1)	10 (20.0)	0.8 (0.2-2.0)
Mild Risk	30 (34.1)	12 (24.0)	
No risk	0 (0.0)	1 (2.0)	

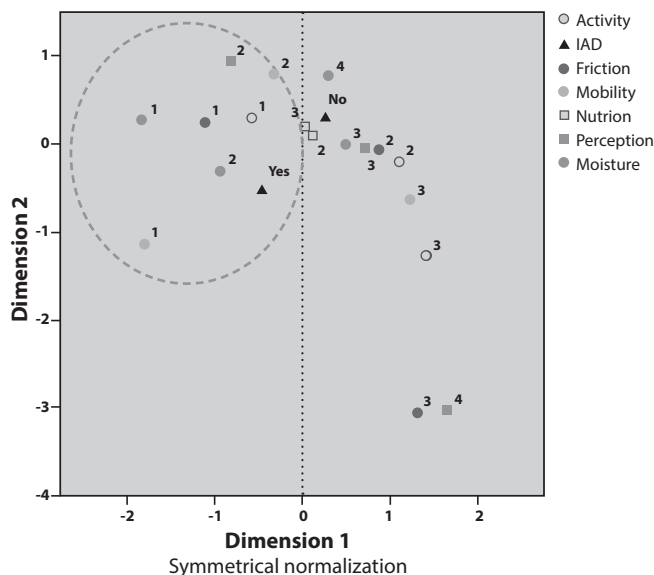
Note: IAD: incontinence-associated dermatitis; BMI: Body Mass Index; CI: confidence interval † CI with statistical significance

Table 2 shows the extrinsic factors and IAD associations. The findings demonstrated, as a risk factor to IAD, "longer hospital stay" (OR = 5.8 [2.6-12.9]).

Table 2 - Extrinsic factors and distribution of incontinence-associated dermatitis (IAD) in two public hospitals in the city of Bauru, São Paulo, Brazil, Jan - Aug 2016

Variable	IAD n %		Odds Ratio (IC95%)
	No	Yes	
n	88	50	
Isolation			3.0 (1.0-9.0)
No	82 (93.2)	41 (82.0)	
Yes	6 (6.8)	9 (18.0)	
Length of stay			5.8 (2.6-12.9)*
Up to 15 days	75 (85.2)	25 (50.0)	
More than 15 days	13 (14.8)	25 (50.0)	
Feeding route			1.0
Oral	61 (69.3)	30 (60.0)	
Enteral	24 (27.3)	19 (38.0)	1.6 (0.8-3.4)
Fasting or TPN*	2 (2.3)	0 (0.0)	
No information	1 (1.1)	1 (2.0)	
Use of diuretic			1.0 (0.5-2.1)
No	52 (59.1)	29 (58.0)	
Yes	36 (40.9)	21 (42.0)	
Use of laxative			0.4 (0.1-1.0)
No	63 (71.6)	43 (86.0)	
Yes	25 (28.4)	7 (14.0)	
Use of sedative			1.6 (0.7-3.9)
No	74 (84.0)	38 (76.0)	
Yes	14 (16.0)	12 (24.0)	
Diaper change frequency			
Immediate up to 2 h	24 (27.3)	8 (16.0)	
> 2 h a 6 h	61 (69.3)	37 (74.0)	1.8 (0.7- 4.4)
Over 6 h	3 (3.4)	5 (10.0)	5.0 (0.9-25.7)
Outcome			
Discharge	52 (59.1)	21 (42.0)	
Death	18 (20.4)	14 (28.0)	1.9 (0.8-4.5)
Continued hospitalization	17 (19.3)	14 (28.0)	2.0 (0.8-4.8)
No information	1 (1.1)	1 (2.0)	

Note: IAD: incontinence-associated dermatitis; TPN: Total parenteral nutrition; CI: confidence interval + CI with statistical significance



Subtitle: Mobility: 1. Completely immobile; 2. Very limited; 3. Slightly limited. Moisture: 1. Constantly moist; 2. Often Moist; 3. Occasionally moist; 4. Rarely moist. Sensory perception: 1. Completely limited; 2. Very limited; 3. Slightly limited; 4. No impairment Activity 1. Bedfast; 2. Chairfast; 3. Walks occasionally. Nutrition: 1. Very Poor; Probably inadequate; 3. Adequate; 4. Excellent. Friction and shear: 1. Problem; 2. Potential problem; 3. No apparent problem.

Figure 2 Perceptual map of the multiple correspondence analysis between categories of the Braden Scale related to the presence or absence of incontinence-associated dermatitis (IAD)

The predominant occlusive device used by 134 (97.1%) of the patients was the synthetic disposable adult diaper. The products most commonly used for intimate hygiene were bar soap, mentioned by 70 (51%) individuals; liquid soap, by 25 (18%); and in 43 of the cases (31%), there was no information about the cleaning. The use of bar soap showed no association with IAD ($p = 0.31$). None of the cases used no-rinse hygiene products with acid pH.

Although the majority of patients, 82 (59.4%), used some topical protective products in the diaper region, 61 (40.6%) did not use it or did not have information about it. The products used for prevention or treatment were: zinc oxide ointment associated with retinol (Vitamin A) 5,000 IU and cholecalciferol (Vitamin D) for 40 patients (29%), essential fatty acid (24%); moisturizing lotion (9%); antifungal cream (9%), among others. In none of the scenarios studied, there was IAD prevention and treatment protocol in place to guide the use of products in each situation.

Figure 2 represents the association of IAD with the subcategories of the Braden Scale through multiple correspondence analysis. It is a multivariate analysis between categories, allowing the analysis of existing relationships by reducing the dimensionality of the dataset. Some categories of the Braden Scale showed to be associated with IAD because they belong to the "Yes" quadrant: Moisture (1. Constantly moist, 2. Often moist); Mobility (1. Completely immobile, 2. Very limited); Sensory perception (2. Very limited), Activity (1. Bedfast); Friction and Shear (1. Problem). Patients with the absence of IAD are shown in the "No" quadrant. Categories that represent patients theoretically healthier and with fewer risk factors to skin integrity in general prevailed.

DISCUSSION

The prevalence of IAD in the elderly hospitalized population was 36.2%, consistent with the rates found in other studies. IAD is a condition with wide distribution variability, having prevalence rates and incidence rates, between 3.4% and 50%^(1,9). Nonetheless, the prevalence found in the current study is high and reinforces the need for a more careful look at hospitalized elderly patients. Such findings are a warning about the need for developing protocols to prevent and treat this condition in conjunction with the nursing process.

Clinical signs of candidosis were present in 14% of cases of IAD. Furthermore, this is the main complication of the disease, having percentages ranging from 8% to 77% of cases. The moist and hot environment, due to the diaper, favors the penetration and proliferation of *Candida* spp. in the corneal extract and worsening of inflammation, since the previous damage to the epithelium facilitates acidophilic yeast colonization and epithelial invasion. In adults and the elderly, the presence of the *Non-albicans Candida* group is higher. We highlight that species such as *Candida glabrata* have a higher presence, which may be a colonizer in irritated skin in the diaper area. This factor is important as they are species that easily acquire resistance to treatments such as fluconazole and other antimycotic agents. We suggest it is necessary to consider, investigate, and treat infection caused by this yeast in dermatitis persisting for more than three days of evolution⁽⁹⁻¹⁰⁾.

Regarding the type of incontinence, the combined urinary and fecal was the most prevalent, affecting 50% of the sample.

However, no type of incontinence showed an association with the development of IAD. Concerning the type of effluent, watery feces have not shown to be a risk factor to this type of dermatitis although they have contact with a larger area of the skin, in addition to containing more bile salts and pancreatic lipase than solid feces, enzymes known to be involved in the skin breakdown⁽¹¹⁾.

Regarding the presence of PS we did not identify an association with IAD. However, there was an association with the high risk to PS using the Braden Scale. Accurate skin assessment is essential for a correct distinctive diagnosis between IAD and PS and other skin lesions, and also for better skincare orientation⁽¹²⁾.

Regarding extrinsic and intrinsic factors that may contribute to developing IAD, a study with 166 hospitalized patients showed a statistically significant correlation between IAD and fecal incontinence, frequency of eliminations, poor skin condition, pain, poor skin oxygenation, fever, and compromised mobility. Other additional factors included the severity of the disease and comorbidities, as well as low serum albumin levels, which is associated with a marked increase in the probability of skin damage⁽¹¹⁾.

The intrinsic factors concern particular conditions that may predispose to risk or act as a protective factor for the IAD condition. In the current study, obesity proved to be a risk factor to this dermatitis since the chance of developing dermatitis is 3.6 times higher in obese patients. Having a higher BMI, classified as obesity, can increase the occlusive effects or skin surface loads, thus reducing tissue tolerance⁽¹²⁾. The fact of being very dependent increases the risk to develop IAD by 2.4 times, considering the functional capacity of the elderly individual according to the Katz index. A European study also associated a high level of dependence with IAD. Although the study has demonstrated the different levels using another scale⁽¹²⁾. It is known that frequent episodes of incontinence (especially fecal), occlusive restraint products, poor skin condition, reduced mobility, diminished cognitive awareness, inability to perform personal hygiene, pain, pyrexia, certain medications (antibiotics, immunosuppressants), poor nutritional status and critical illness are associated with IAD⁽¹²⁾.

Concerning extrinsic factors, that is, external factors that do not depend on particular conditions, we observed that the length of hospital stay higher than 15 days was a risk factor to develop IAD, outlining a 5 times higher chance of developing this condition. A longer length of stay increases the risk to complications resulting from hospitalization, such as hospital infections and skin lesions, especially in the elderly, besides reducing bed turnover and increasing hospital costs.

Regarding the frequency of changing the occlusive device (adult diapers), we observed that the vast majority of patients with dermatitis were changed every 6 hours, routinely once or more per shift, regardless of the occurrence of eliminations during the period. The frequency of change was not a risk factor to IAD, an unexpected result, since the longer the time of exposure to moist and irritative agents, the higher the risk to develop the inflammatory process⁽¹²⁾. This outcome could be different by increasing the sample size.

For cleaning the genital region after an episode of feces or urine in the wards, bar soap was the most used, but its use did not show an association with IAD. Bar soap, antibacterial products intended for skin cleansing or hand washing should not be

used, as they can cause dry skin, raise the pH, which becomes more alkaline, and contribute to epidermal excoriation. Soaps with alkaline pH remove the skin acid mantle, promoting bacterial growth. Cleansing should preferably be done using liquid soaps with neutral or acidic pH. However, as most conventional soaps have alkaline pH, it is recommended to use no-rinse hygiene agents and with acid pH. To cleanse through mechanical movements along with alkaline pH soaps can lead to the skin rupture through removing its natural lipids, which serve as a protective barrier. A recent clinical trial recommended the use of miconazole soap instead of regular soap for daily genital cleansing in elderly patients wearing diapers, as a preventive strategy for candidosis⁽¹¹⁾. After cleansing, barrier products are an essential part of a preventive skincare routine. The careful and appropriate evaluation will identify which patients are most at risk to IAD and, therefore, should have barrier products as part of their routine, containing petrolatum and dimethicone, creams, oils or liquids based on zinc oxide. Liquid film-forming acrylate is also commonly used, which offers moisturizing and barrier functionality. There is no consensus on the best barrier type product to be applied⁽¹²⁾.

The Braden Scale, an already validated PS risk assessment tool, although not designed for IAD, includes some subcategories that could be possibly related to this dermatitis. Therefore, the current research tested them. Thus, through a multivariate analysis between the categories, it was possible to demonstrate that the Braden Scale categories associated with IAD were: constantly moist or often moist; completely immobile, very limited mobility; very limited sensory perception; bedfast patients; and friction identified as a problem. These changes characterize more debilitated patients, which, therefore, have more risks to developing the condition. As expected, moist was associated with IAD, and the vast majority of patients with dermatitis fit into the Braden Scale categories "constantly moist" and "often moist." Furthermore, irritant contact dermatitis originates from damage to the water-lipid-protein matrix of the skin due to prolonged contact with the irritative substance. Moisture macerates and weakens the outer layers of the skin, which becomes vulnerable to injury, especially if associated with friction and shear⁽¹¹⁾.

We did not observe the existence of an institutional team knowledge protocol that would guide the prevention and management of such dermatitis. However, it is known that nursing care without theoretical support and adequate standardization favors imperious, negligent, or imprudent professional practice, which can cause damage to the patients. Studies have pointed out advantages in using care protocols, such as greater safety for users and professionals, reduction of care actions variability, improvement in the qualification of professionals for decision-making assistance, easier incorporation of new technologies, care innovation, rational use of available resources and greater transparency and cost control. Therefore, it is necessary to develop and regularly use protocols for the prevention and treatment of IAD in hospital units.

Despite the increasing knowledge about this type of dermatitis, there are still significant gaps in our understanding of the problem. The current difficulties are related to prevention, early recognition, differentiation, and adequate management⁽¹³⁾.

Recent studies demonstrate that the use of a bundle combining the best available evidence can reduce the incidence and delay the development of IAD in critically ill patients. Ongoing and systematic patient assessments, combined with individualized prevention measures, are central to preventing it in a group of vulnerable patients⁽¹⁴⁾.

Study Limitations

We can consider as limitations of the current study: not checking the pH of the soaps used at the time of the assessment; not performing direct mycological examination to confirm cases of candidosis associated with IAD; in some cases, absence of informants or complete records of the nursing staff (e.g., need and frequency of diaper change); and not using an instrument to assess the level of cognitive impairment. Although the sample size has reached the minimum number necessary to achieve our main objective, some correlations may not have been significant

due to the relatively small sample size, suggesting the need for further studies with larger samples for detailed analysis of the data.

Contributions to the fields of Nursing, Health or Public Policy

By acquiring this knowledge, it is possible to aim for transforming practice through systematic and quality care based on evidence, instrumented by tools such as the nursing process, IAD risk assessment scales and clinical protocols for its prevention.

CONCLUSION

The investigation showed a high prevalence of IAD in hospitalized elderly patients, and higher risk to develop it linked to length of stay longer than 15 days, obese patients, very dependent and at severe risk in the Braden Scale. These findings show the importance of investigation, attention to risk factors and actions focused on preventing this condition.

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