

Point prevalence of incontinence-associated dermatitis and associated factors in critical patients

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ABSTRACT

Objective: To identify the prevalence of incontinence-associated dermatitis (IAD) and its associated factors in critically ill patients. **Method:** A cross-sectional, quantitative study conducted in the Intensive Care Unit of a private hospital in São Paulo, involving 93 patients who met the eligibility criteria. Data collection took place on a single day in December 2016, with a thorough review of medical records and assessments of hospitalized patients. A three-part instrument was used: 1) sociodemographic data, 2) urinary and fecal elimination, and 3) characterization of IAD. The analysis was performed using descriptive and inferential statistics. **Results:** Of the 93 patients, 50.5% were women, aged 19 to 104 years. IAD was identified in 40.9% of patients, with a higher prevalence in the intensive care unit (66.7%). Erythema was the most common manifestation (89.4%), and the perianal region was the most affected area (76.3%). The use of antibiotics ($p=0.004$), corticosteroids ($p=0.001$), mechanical restraint ($p=0.006$), fecal incontinence ($p<0.001$), and urinary incontinence ($p=0.026$) were significantly associated with IAD. **Conclusion:** The high prevalence of IAD observed in this study underscores the importance of continuous education and the implementation of evidence-based protocols for managing critically ill patients.

DESCRIPTORS: Diaper rash. Urinary incontinence. Fecal incontinence. Enterostomal therapy. Prevalence. Intensive care units.

Prevalência pontual de dermatite associada à incontinência e fatores associados em pacientes críticos

RESUMO

Objetivo: Identificar a prevalência pontual da dermatite associada à incontinência (DAI) e seus fatores associados em pacientes críticos. **Método:** Estudo transversal e quantitativo realizado em um Centro de Terapia Intensiva de um hospital privado em São Paulo, envolvendo 93 pacientes que atenderam aos critérios de elegibilidade. A coleta de dados ocorreu em um único dia em dezembro de 2016, com a avaliação minuciosa dos prontuários e pacientes internados. Utilizou-se um instrumento com três partes: 1) dados sociodemográficos, 2) eliminação urinária e fecal, e 3) caracterização da DAI. A análise foi feita por estatística descritiva e inferencial. **Resultados:** Dos 93 pacientes, 50,5% eram mulheres, com idades entre 19 e 104 anos. A DAI foi identificada em 40,9% dos pacientes, com maior prevalência na Unidade de Terapia Intensiva – UTI (66,7%). Eritema foi a manifestação mais comum (89,4%) e a região perianal foi a mais afetada (76,3%). O uso de antibióticos ($p=0,004$),

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de corticoides ($p=0,001$), a restrição mecânica ($p=0,006$), a incontinência fecal ($p<0,001$) e a urinária ($p=0,026$) foram significativamente associados à DAI. **Conclusão:** A alta prevalência de DAI neste estudo destaca a importância da educação permanente e da aplicação de protocolos baseados em evidências no manejo de pacientes críticos.

DESCRITORES: Dermatite das fraldas. Incontinência urinária. Incontinência fecal. Estomaterapia. Prevalência. Unidades de terapia intensiva.

Prevalencia puntual de dermatitis asociada a la incontinencia y factores asociados en pacientes críticos

RESUMEN

Objetivo: Identificar la prevalencia puntual de la dermatitis asociada a la incontinencia (DAI) y sus factores asociados en pacientes críticos. **Método:** Estudio transversal y cuantitativo realizado en un Centro de Cuidados Intensivos de un hospital privado en São Paulo, con 93 pacientes que cumplieron con los criterios de elegibilidad. La recolección de datos se realizó en un solo día en diciembre de 2016, mediante una evaluación minuciosa de los registros médicos y de los pacientes hospitalizados. Se utilizó un instrumento con tres partes: 1) datos sociodemográficos, 2) eliminación urinaria y fecal, y 3) caracterización de la DAI. El análisis se realizó mediante estadística descriptiva e inferencial. **Resultados:** De los 93 pacientes, el 50,5% eran mujeres, con edades entre 19 y 104 años. La DAI se identificó en el 40,9% de los pacientes, con mayor prevalencia en la unidad de cuidados intensivos (66,7%). El eritema fue la manifestación más común (89,4%) y la región perianal la más afectada (76,3%). El uso de antibióticos ($p=0,004$), de corticosteroides ($p=0,001$), la contención mecánica ($p=0,006$), la incontinencia fecal ($p<0,001$) y urinaria ($p=0,026$) se asociaron significativamente con la DAI. **Conclusión:** La alta prevalencia de DAI en este estudio resalta la importancia de la educación continua y la aplicación de protocolos basados en evidencia en el manejo de pacientes críticos.

DESCRIPTORES: Dermatitis del pañal. Incontinencia urinaria. Incontinencia fecal. Estomaterapia. Prevalencia. Unidades de cuidados intensivos.

INTRODUCTION

Incontinence-associated dermatitis (IAD) is an insidious complication that significantly impacts patients' quality of life¹. Clinically, IAD is characterized by the presence of erythema and edema on the skin, and it can also present with blister formation, serous exudate, erosion, or secondary skin infections. It falls under the classification of moisture-associated skin damage (MASD)².

Despite being a common skin condition, IAD remains highly underreported¹, leading to serious consequences such as fungal infections and *Pseudomonas aeruginosa*^{2,3}. Additionally, it demands extra time from caregivers for skin care and imposes greater financial burdens on healthcare institutions, patients, and their families².

International studies have reported IAD prevalence rates ranging from 1.5% to 4.3%^{4,5}. In Brazil, however, the prevalence rates are higher, ranging from 9.4% to 36.2%^{6,7}. These rates may be even higher, as healthcare professionals still possess insufficient knowledge on the subject and have limited practical training in skin assessment, particularly in the perineal area^{3,8}.

Risk factors for the development of IAD include length of hospital stay, bed restriction, high dependency on care, obesity, cognitive impairment, fecal and urinary incontinence, use of nasogastric tubes, and altered skin surface pH^{6,7}. Critically ill patients are at greater risk of developing MASD due to their clinical conditions, which increase the presence of these risk factors⁹.

However, there is still a lack of studies on IAD that could help reduce underreporting and promote consistent evaluations of risk factors and prevention of hospital-acquired dermatitis¹, given that IAD is a preventable condition. Consequently, it

is essential for nursing staff to have the knowledge to identify and monitor risk factors, as well as to establish prevention and treatment protocols⁶.

Internationally, the prevalence of IAD varies from 6.89% to 17%^{10,11}. However, in Brazil, IAD in critically ill patients admitted to Intensive Care Units (ICUs) has been poorly studied, resulting in significant gaps in understanding the issue from the perspectives of epidemiology, etiology, risk factors, and management.

Based on empirical observations, clinical experience shows that this is a clinically relevant and prevalent condition, especially in ICUs. It is worth noting that maintaining the integrity of patients' skin is a national and international goal in the hospital setting, particularly in ICUs. For this reason, a point prevalence assessment was chosen, which represents the measurement of the number of cases of a disease or other health condition existing in a population at a specific point in time, such as a single day.

Thus, identifying the prevalence of IAD in this patient profile could contribute to the state of the art on the topic and guide the implementation of appropriate preventive measures. Moreover, by identifying the factors associated with IAD, it is likely that the nursing team will prioritize care for patients with specific risk factors, providing timely and appropriate care to prevent the development of IAD. This study will also contribute to Brazilian research, as it addresses an area with gaps and limited scientific data on the subject.

OBJECTIVES

To identify the point prevalence rate of dermatitis related to incontinence and associated factors in critically ill patients, measured on a single day.

METHODS

This is a cross-sectional study with a quantitative approach. The study was conducted in the ICU of a private hospital in São Paulo, which has 139 beds, stratified into semi-intensive care (51 beds), neurological semi-intensive care (22 beds), a coronary care unit (22 beds), and an adult ICU (44 beds). On the study day, of the 139 ICU beds, 104 were occupied and included in the research sample, consisting of 34 patients from semi-intensive care, 12 patients from neurological semi-intensive care, 20 patients from the coronary care unit, and 27 patients from the adult ICU.

Of the 104 patients hospitalized in the ICU on the day of data collection, six had been hospitalized for less than 24 hours, and two were discharged on the study day, making it impossible to assess their skin. One patient declined to participate, and two patients were undergoing dialysis outside the ward. Therefore, 93 patients were included in the study sample.

The inclusion criteria were: patients aged 18 years or older who agreed to participate in the study and had been hospitalized for more than 24 hours to allow for the assessment of bowel function. Patients with hemodynamic instability and those undergoing dialysis outside the ICU were excluded.

Data collection took place on a single day in December 2016. All medical records and hospitalized patients in the ICU who met the eligibility criteria (n=93) were evaluated. The research support team consisted of eight nurses, five of whom were members of the Wound and Ostomy Care Group (GAEFE in Portuguese), with advanced knowledge, training, and skills in caring for patients with wounds and/or ostomies. Among these five, three were specialized ostomy nurses. The other members were residents in Intensive Care Nursing at the institution, performing their duties in the relevant contexts.

The training of the research assistants was coordinated and conducted by the lead author of the study, lasted three hours, and took place on the day before data collection. The training session included an explanation of the project, followed by the distribution of printed materials with theoretical content on IAD: definition, pathophysiology, clinical signs, affected areas, and differential diagnosis between IAD, pressure injuries, and friction injuries in the gluteal area.

The construction of the data collection instrument was based on the recommendations published by Beeckman et al.¹³ and Bliss et al.¹⁴, and it consisted of three parts. The first part of the instrument used for data collection comprised

sociodemographic information (age, date of birth, sex, and race) and clinical data (hospitalization data—reason for hospitalization, medical history, length of stay; skin assessment at admission—medical record entry; skin assessment on the day of data collection by the researchers—intact skin, presence or absence of damage such as pressure injury (PI), IAD, or friction injury).

The second part contained information on urinary and fecal elimination. Regarding urination, participants were categorized as anuric, continent, or incontinent. Incontinence was defined as the inability to control the flow of urine and/or feces at any time in the past 24 hours¹⁵. The types of urinary containment devices were categorized as disposable diapers, disposable absorbent pads, or absorbent sheets. It is important to note that patients with urinary catheters were considered urinary continent.

Fecal elimination was categorized as continent or incontinent. Diarrheal disease was defined as three or more bowel movements in 24 hours¹⁶. Therefore, the frequency of bowel movements was divided into up to three times in 24 hours or more than three times a day. Incontinence was defined as the inability to control the flow of urine and/or feces at any time in the past 24 hours^{15,17}.

Patients with fecal containment devices were considered fecally incontinent due to the high likelihood of peridevice fecal leakage, resulting in skin contact with feces. These categorizations are consistent with previous studies^{15,17}.

Patients with urinary catheters were considered urinary continent. The third part of the instrument described the characteristics of IAD. The dermatological signs analyzed included the presence of maceration, erythema, vesicles, papules, erosion, or ulceration (denudation)^{15,18,19}.

The variables were organized in Microsoft Excel[®] spreadsheets and subsequently imported into the Statistical Package for the Social Sciences (SPSS) version 22.0. Pearson's chi-square test or Fisher's exact test, Student's t-test, Mann-Whitney test, or Wilcoxon-Mann-Whitney test were used. After bivariate analysis, variables identified in the literature as predictors of IAD were included in the multiple logistic regression model. The significance level was set at $\alpha=0.05$.

To calculate the prevalence of incontinence, the number of incontinent patients on the day of data collection was divided by the total number of patients analyzed and multiplied by 100. To calculate the point prevalence rate of IAD, the number of patients with IAD on the day of the study was divided by the total number of patients assessed and multiplied by 100. The point prevalence rate of IAD in incontinent patients was calculated by dividing the total number of incontinent patients with IAD on the day of the study by the total number of incontinent patients on the study day^{18,20}.

The study was submitted to and approved by the Research Ethics Committee (REC) of the institution under opinion number 1.660.310/2016. The ethical principles of Resolution 466/2012 of the National Health Council were followed.

To obtain informed consent, the strategy used in a study by Bernardes²¹, conducted in a teaching hospital in the interior of São Paulo, was adopted. To minimize participant loss, considering that some patients were unconscious or might not have companions on the day of data collection, the researchers invited the patients and/or their representatives two days before data collection. The signed informed consent forms from patients who were discharged, deceased, or transferred on the day of data collection were discarded.

RESULTS

The study included 93 participants. The distribution of patients by gender was 47 women (50.5%) and 46 men (49.5%). The patients' ages ranged from 19 to 104 years, with an average age of 72 years (SD \pm 18.2) and a median of 76.7 years. A predominance of white individuals was observed (n=80; 86%).

Regarding comorbidities, respiratory diseases were the most frequent (n=27; 29%), followed by circulatory diseases (n=18; 19.4%) and nervous system diseases (n=12; 12.9%). In terms of past medical history, hypertension (n=37; 39.8%) and diabetes (n=21; 22.6%) were the most prevalent conditions.

Table 1 presents the profile of patients concerning urinary and fecal continence. Among the 93 patients studied, urinary incontinence was most prevalent among those in the semi-intensive care unit (n=15; 44.1%). Overall, across all units, 31 patients (33.3%) had urinary incontinence. Regarding fecal continence, the highest rate of incontinence was observed among patients in the ICU (n=17; 63%). In total, considering all ICU units, 48 patients (51.6%) had fecal incontinence.

Table 2 shows that most patients (n=62; 66.7%) used diapers as a containment device for incontinence. The highest prevalence of patients using diapers was in the semi-intensive care unit (n=26; 76.5%), followed by the ICU (n=20; 74%). The use of a toilet was more frequent in the coronary care unit (n=8; 40%). Regarding the use of absorbent pads, eight patients (8.6%) were recorded as using this type of containment device, with four in the neurological semi-intensive care unit (n=4) and four in the coronary care unit (n=4).

In relation to the use of bedpans or urinals, four ICU patients (14.8%) required these devices, compared to two patients in the coronary care unit (10%) and one patient in the neurological semi-intensive care unit (8.4%). Finally, only one patient in the semi-intensive care unit used an absorbent sheet (2.9%).

Table 3 presents the prevalence of IAD. The ICU had the highest prevalence of IAD (n=8; 66.7%). In the semi-intensive care unit, 10 patients (29.4%) had IAD. The neurological semi-intensive care unit and the coronary care unit showed a lower incidence of IAD cases (n=4; 33.3% and n=6; 30%, respectively). In total, among the 93 patients evaluated, 40.9% (n=38) were diagnosed with IAD.

Table 4 details the dermatological signs and affected body regions across the different ICU sectors. Erythema was the most prevalent manifestation of IAD across all sectors, with a total occurrence of 89.4% (n=34). In the ICU, coronary care

Table 1. Distribution of the number of patients with urinary and fecal incontinence according to the hospitalization sector. São Paulo (SP), 2016.

Sector	Urinary continence				Total
	Continent		Incontinent		
	f	%	f	%	
Semi-intensive	19	55.9	15	44.1	34
Neurological semi-intensive	7	58.3	5	41.7	12
Coronary care unit	12	60.0	8	40.0	20
ICU	24	88.9	3	11.1	27
Total	62	66.7	31	33.3	93

Sector	Fecal continence				Total
	Continent		Incontinent		
	f	%	f	%	
Semi-intensive	17	50.0	17	50.0	34
Neurological semi-intensive	7	58.3	5	41.7	12
Coronary care unit	11	55.0	9	45.0	20
ICU	10	37.0	17	63.0	27
Total	45	48.4	48	51.6	93

f: frequency; ICU: Intensive Care Unit.

Table 2. Distribution of the number of patients according to the type of device used for urinary and/or fecal incontinence containment, by hospitalization sector. São Paulo (SP), 2016.

Containment device	Sector									
	Semi-intensive		Neurological semi-intensive		Coronary care unit		ICU		Total	
	f	%	F	%	f	%	f	%	f	%
Diaper	26	76.5	6	50.0	10	50.0	20	74.0	62	66.7
IUC	3	8.8	2	16.8	-	-	18	66.7	23	24.7
Toilet	4	11.8	4	33.6	8	40.0	2	7.4	18	19.4
Absorbent pad	-	-	4	33.6	4	20.0	-	-	8	8.6
Bedpan/Urinal	1	2.9	1	8.4	2	10.0	4	14.8	8	8.6
Absorbent sheet	1	2.9	-	-	-	-	-	-	1	1.1

f: frequency; ICU: Intensive Care Unit; IUC: indwelling urinary catheter.

unit, and neurological semi-intensive care unit, all patients with IAD presented erythema (n=18; 100%, n=6; 100%, and n=4; 100%, respectively). Erosion was recorded in 21.1% (n=8) of cases, being more common in the ICU (n=6; 33.3%). Maceration appeared in 13.2% (n=5) of patients, predominantly in the semi-intensive care unit (n=3; 30%). Ulcerations were observed in four patients (10.5%). Papules were detected in only two patients (5.3%).

Regarding the location of IAD, the perianal region was the most frequently affected across all sectors (n=29; 76.3%). The intergluteal region was recorded in 13 patients (34.2%). Other affected areas included the right gluteal region (n=12; 31.6%) and the left gluteal region (n=11; 28.9%). The right inguinal region (n=7; 18.4%) and the left inguinal region (n=6; 15.8%) were also affected, with all cases occurring in the ICU. Less affected areas included the scrotal sac (n=5; 13.2%), the vulva (n=4; 10.5%), and the penile region (n=2; 5.3%).

Table 3. Point prevalence of incontinence-associated dermatitis by hospitalization sector. São Paulo (SP), 2016.

Sector	Incontinence-associated dermatitis				Total
	No		Yes		
	f	%	f	%	
Semi-intensive	24	70.6	10	29.4	34
Neurological semi-intensive	8	33.3	4	33.3	12
Coronary care unit	14	70.0	6	30.0	20
ICU	9	33.3	18	66.7	27
Total	55	59.1	38	40.9	93

Notes: f: frequency; ICU: Intensive Care Unit.

Table 4. Distribution of the number of patients with incontinence-associated dermatitis according to its severity, by type of sector. São Paulo (SP), 2016.

Dermatological signs	Sector									
	Semi-intensive (n=10)		Neurological semi-intensive (n=4)		Coronary care unit (n=6)		ICU (n=18)		Total (n=38)	
	f	%	f	%	f	%	f	%	f	%
Erythema	6	60.0	4	100.0	6	100.0	18	100.0	34	89.4
Erosion	2	20.0	-	-	-	-	6	33.3	8	21.1
Maceration	3	30.0	-	-	-	-	2	11.1	5	13.2
Ulceration	-	-	-	-	1	16.7	3	16.7	4	10.5
Papules	-	-	1	25.0	1	16.7	-	-	2	5.3

Dermatological signs	Sector									
	Semi-intensiva		Semi-intensiva neurológica		Unidade coronariana		UTI		Total	
	f	%	f	%	f	%	f	%	f	%
Perianal	7	70.0	2	50.0	3	50.0	17	94.4	29	76.3
Perineal	-	-	2	50.0	3	50.0	10	55.6	15	39.5
Intergluteal	1	10.0	2	50.0	1	16.7	9	50.0	13	34.2
Right gluteal	3	30.0	2	50.0	2	33.3	5	27.8	12	31.6
Left gluteal	1	10.0	2	50.0	2	33.3	6	33.3	11	28.9
Right inguinal	1	10.0	-	-	-	-	6	33.3	7	18.4
Left inguinal	-	-	-	-	-	-	6	33.3	6	15.8
Scrotal sac	-	-	-	-	-	-	5	27.8	5	13.2
Vulvar	-	-	2	50.0	-	-	2	11.1	4	10.5
Penile	-	-	1	25.0	1	16.7	-	-	2	5.3
Inner right thigh	-	-	-	-	1	16.7	-	-	1	2.6
Inner left thigh	-	-	-	-	1	16.7	-	-	1	2.6

Notes: f: frequency; ICU: Intensive Care Unit.

Data analysis revealed statistically significant associations between the presence of IAD and various clinical variables. The use of antibiotics ($p=0.004$) and corticosteroids ($p=0.001$) was significantly associated with the development of IAD. Patients who experienced mechanical restraint had a higher prevalence of IAD ($p=0.006$). Additionally, fecal incontinence ($p<0.001$) and urinary incontinence ($p=0.026$), as well as bowel movement frequency exceeding three times per day ($p=0.001$) and the presence of liquid stools ($p<0.001$), were identified as factors associated with IAD (Table 5).

Table 5. Distribution of the number of patients according to the type of medication, use of mechanical restraint, elimination, and the presence of incontinence-associated dermatitis. São Paulo (SP), 2017.

Clinical variables	Incontinence-associated dermatitis				Total	p-value
	No		Yes			
	f	%	f	%		
Medications						
Vasoactive drugs						
No	51	62.2	31	37.8	82	0.116*
Yes	4	36.4	7	63.6	11	
Bowel stimulant						
No	47	57.3	35	42.7	82	0.516*
Yes	8	72.7	3	27.3	11	
Antibiotic						
No	26	78.8	7	21.2	33	0.004†
Yes	29	48.3	31	51.7	60	
Corticosteroid						
No	45	70.3	19	29.7	64	0.001†
Yes	10	34.5	19	65.5	29	
Immunosuppressant						
No	54	59.3	37	40.7	91	>0.999*
Yes	1	50.0	1	50.0	0	
Use of mechanical restraint						
No	53	64.6	29	35.4	82	0.006*
Yes	2	18.2	9	81.8	11	
Elimination						
Incontinence						
No	35	79.5	9	20.5	44	<0.001†
Yes	20	40.8	29	59.2	49	
Urinary						
Continent	39	62.9	23	37.1	62	0.026‡
Incontinent	16	51.6	15	48.4	31	
Fecal						
Continent	35	77.8	10	22.2	45	<0.001†
Incontinent	20	41.7	28	58.3	48	
Bowel movement frequency						
Absent	28	71.8	11	28.2	39	0.001†
Up to 3 times	23	65.7	12	34.3	35	
More than 3 times	4	21.1	15	78.9	19	
Stool consistency						
Hardened	1	100.0	0	0.0	1	<0.001‡
Soft	21	75.0	7	25.0	28	
Semiliquid	3	30.0	7	70.0	10	
Liquid	2	13.3	13	86.7	15	

*Fisher's exact test; † χ^2 test; ‡likelihood ratio test. f: frequency.

After bivariate analysis, variables identified in the scientific literature as predictors of IAD were included in a multiple logistic regression model. It was observed that patients in the ICU were approximately six times more likely to develop IAD compared to those in the coronary care unit or the neurological semi-intensive care unit (odds ratio – OR 6.14 [95% confidence interval – CI95% 1.73–21.82]; $p=0.005$).

Participants using corticosteroids had 3.12 times greater odds of developing IAD compared to those not using them (OR 3.12 [CI95% 1.07–9.10]; $p=0.037$). Additionally, it was observed that among patients who used diapers, the likelihood of developing IAD was 9.34 times higher compared to those who did not use them (OR 9.34 [CI95% 2.52–34.59]; $p=0.001$).

DISCUSSION

Critical care units treat patients who, due to various clinical conditions, are highly vulnerable to developing skin injuries. Factors such as urinary and fecal incontinence, altered levels of consciousness, mechanical skin friction, limited mobility, and excess moisture significantly contribute to this risk.

Among the 93 patients evaluated in the study, there was a higher frequency of elderly patients and women. International studies with a similar scope corroborate these findings^{5,22}. This highlights that the prevalence of IAD tends to be higher in older populations, making it essential to provide more careful attention to elderly patients and implement preventive protocols in the nursing process to avoid this condition during hospitalization^{7,23}.

When assessing urinary and fecal continence, it was found that urinary incontinence was more prevalent among patients in the semi-intensive care unit, while fecal incontinence was more common among those in the ICU. A study conducted in an Australian hospital identified an incontinence prevalence rate of 24% (91/376)²⁴. However, a study in an ICU in São Paulo found that only 7.6% of patients had fecal incontinence²⁵.

These discrepancies in prevalence rates may be related to differences in assessment criteria, care protocols, or the population characteristics of patients in different units and regions. Therefore, it is essential to routinely assess the risk of incontinence, as urine and feces are etiological agents in the development of IAD due to the irritative action of digestive enzymes.

Regarding containment devices for effluents, a higher use of diapers was observed, particularly in the semi-intensive care unit and ICU. A study conducted in Minas Gerais found that patients with urinary diversion using diapers are 13.7 times more likely to develop skin injuries compared to continent patients²⁶. This observation emphasizes the need for a careful approach in managing effluent containment devices, such as diapers, especially in patients with urinary diversion. The adoption of preventive practices and continuous monitoring are essential to minimize the risk of skin injuries, ensuring better quality of care and protection for these vulnerable patients.

In this study, the overall point prevalence of IAD in the ICU analyzed was 40.9%, a value higher than other national studies, which reported IAD prevalence rates ranging from 9.5% to 36.2%^{19,25}. This wide variation may be associated with the lack of standardized and validated classification instruments for IAD in the Brazilian context²⁵. It is important to note that in 2017, Beeckman et al.¹³ developed GLOBIAD, an international instrument for categorizing the severity of IAD. However, this instrument has not yet undergone a cross-cultural adaptation process for the Brazilian context, limiting its application in clinical practice in the country.

Similar to previous studies, it was identified that ICU patients have a higher point prevalence of IAD^{9,27}. The risk of developing IAD in ICU patients is high not only due to incontinence but also because many patients experience loose stools or diarrhea, are bedridden, and require assistance with managing feces and performing personal hygiene⁹.

In terms of dermatological signs, erythema was the most prevalent manifestation of IAD across all sectors. A study conducted in two public hospitals in São Paulo supports this finding, confirming that erythema is one of the main cutaneous manifestations associated with IAD¹⁹. This underscores the importance of early identification of erythema as a critical clinical sign in the detection and prevention of IAD. Continuous attention to this manifestation can guide more effective preventive interventions, contributing to a reduction in the incidence and severity of skin injuries in hospitalized patients.

Regarding the anatomical regions most affected by IAD, the present study highlighted the perianal and gluteal regions. A review study confirms that moisture lesions frequently appear in the adipose tissue of the buttocks, perineum, inner thighs, scrotum, and vulva²⁸. In this context, it is important to note that inspecting and observing IAD in these regions is a

complex skill, especially in critically ill patients. Therefore, skin assessments for IAD should include the perineum, gluteal folds, inner thighs/groin, and buttocks, and should be performed whenever the patient is repositioned²⁷.

Regarding medication use, a significant association was found between the use of antibiotics and the presence of IAD in patients. This finding may be related to the fact that medications such as steroids and antibiotics affect the intestines, potentially leading to diarrhea and frequent exposure of the skin to liquid stools. Consequently, moisture and digestive enzymes (lipase, protease) negatively impact the skin's barrier function²⁷⁻²⁹, requiring greater attention for patients using medications that can alter intestinal flora and fecal pH.

There was also evidence of a higher presence of IAD among those who were mechanically restrained. Similarly, studies in the Brazilian setting have identified a relationship between the occurrence of IAD and limited mobility^{6,7}. Mechanical restraint can reduce body mobility, making it difficult for individuals to change body positions and remove physiological excretions.

Bivariate analysis revealed that ICU patients using diapers had a higher risk of developing IAD. Studies corroborate that the ICU is an environment that exposes patients to various risk factors, and with the use of diapers—especially in patients with urinary and/or fecal incontinence—there is prolonged exposure to moisture and digestive enzymes present in diarrheal stools^{28,30,31}. This represents a significant risk to skin integrity and underscores the need for effective management strategies to prevent IAD.

It is imperative that intensive care nurses equip themselves with the knowledge available in the literature about IAD, understanding that it is a common but preventable condition, and be armed with the necessary information to prevent and properly manage this moisture-associated complication.

This study has limitations due to its cross-sectional design, which does not allow for the inference of causality regarding the occurrence of IAD. Data regarding the frequency of diaper changes were not recorded in the medical charts of the patients analyzed. As a result of inadequate chart documentation, some information was lost. Future studies should plan alternative strategies to address these limitations.

For future research, the importance of conducting longitudinal studies is emphasized to gain a detailed understanding of the progression of IAD over time. Additionally, multicenter studies are essential to obtain a larger sample and compare different settings, enabling a more comprehensive and robust analysis of the factors influencing the development of this condition.

CONCLUSION

The prevalence of IAD in adult ICU patients was high (40.9%). A statistically significant relationship was identified between the presence of IAD and the use of antibiotics, corticosteroids, mechanical restraint, incontinence, urinary incontinence, fecal incontinence, bowel movement frequency, and stool consistency. The results contribute to a situational diagnosis of the occurrence of IAD and its associated factors.

It is crucial to train nursing professionals in the prevention and early identification of IAD through the periodic implementation of continuing education to encourage the application of the nursing process, the use of risk assessment scales for IAD, and evidence-based clinical protocols. It is also important to emphasize the need to report IAD as a skin injury.

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