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Review Article

FATORES DE RISCO PARA DERMATITE ASSOCIADA À INCONTINÊNCIA: UMA REVISÃO INTEGRATIVA

RISK FACTORS FOR DERMATITIS ASSOCIATED WITH INCONTINENCE: AN INTEGRATING REVIEW

FACTORES DE RIESGO PARA DERMATITE ASOCIADA A LA INCONTINENCIA: UNA REVISIÓN INTEGRAL

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RESUMO

Objetivo: Identificar, na literatura, as melhores evidências sobre os fatores de risco para o desenvolvimento da Dermatite Associada à Incontinência (DAI). **Método:** Foi realizada busca nas bases de dados da BVS e MEDLINE por meio da PUBMED, CINAHL e *WEB OF SCIENCE*. Foram identificadas 20 publicações potencialmente elegíveis para inclusão, selecionando-se 14 artigos que atenderam aos critérios de elegibilidade. Eles foram lidos e analisados. **Resultados:** Os fatores de risco para DAI como idade, comorbidades, nutrição, oxigenação, perfusão, temperatura, incontinência fecal e/ou urinária, atrito mecânico, permeabilidade da pele, uso de determinadas estratégias de cuidado, capacidade cognitiva e avaliação da pele são determinantes para o surgimento da DAI. A monitorização da pele, constante, pela avaliação criteriosa do enfermeiro, é essencial. **Conclusão:** Para prevenir-se do problema, é necessária a identificação precoce de fatores de risco para evitar danos ao paciente, prevenção de agravos, favorecer o conforto, bem-estar, diminuir tempo de internação e custos hospitalares e aumentar a qualidade da assistência. Ressalta-se a escassez de literatura sobre a temática e a necessidade de estudos com alto nível de evidência.
Descritores: Dermatite das fraldas; Incontinência fecal; Incontinência urinária; Cuidados de enfermagem.

ABSTRACT

Objective: To identify, in the literature, the best evidences on the risk factors for the development of Incontinence-Associated Dermatitis (IAD). **Method:** We performed searches on the VHL, MEDLINE databases through PUBMED, CINAHL and WEB OF SCIENCE. We identified twenty eligible publications and we selected 14 articles that met the inclusion criteria. We read and analyzed them. **Results:** The risk factors for IAD are: age, comorbidities, nutrition, oxygenation, perfusion, temperature, fecal and / or urinary incontinence, mechanical friction, skin permeability, use of certain care strategies, cognitive ability and skin evaluation. These factors are determinant for the appearance of IAD. Constant skin monitoring by the careful nurse evaluation is essential. **Conclusion:** In order to prevent IAD, identifying risk factors early is necessary to avoid harm to the patient, to prevent injuries, to promote comfort, well-being, to reduce hospitalization time and hospital costs, and to increase the care quality. It is important to emphasize that there is lack of literature about this subject and its importance for studies with a high level of evidence.
Descriptors: Diaper rash; Fecal incontinence; Urinary incontinence; Nursing care.

RESUMEM

Objetivo: Identificar, en la literatura, las mejores evidencias sobre los factores de riesgo para el desarrollo de la Dermatitis Asociada a la Incontinencia (DAI). **Método:** Se realizó una búsqueda en las bases de datos de la BVS, MEDLINE a través de PUBMED, CINAHL y *WEB OF SCIENCE*. Se identificaron 20 publicaciones potencialmente elegibles para inclusión, siendo seleccionados 14 artículos que atendieron a los criterios de inclusión. Ellos fueron leídos y analizados. **Resultados:** Los factores de riesgo de DAI como edad, comorbilidad, nutrición, oxigenación, perfusión, temperatura, incontinencia fecal y/o urinaria, fricción mecánica, permeabilidad de la piel, uso de determinadas estrategias de cuidado, capacidad cognitiva y evaluación de la piel son determinantes para el surgimiento de la DAI. La monitorización constante por la evaluación cuidadosa es esencial. **Conclusión:** Para prevenir la DAI, es necesaria la identificación precoz de factores de riesgo para evitar daños al paciente, prevención de agravios, favorecer el confort, bienestar, disminuir el tiempo de internación y costos hospitalarios y aumentar la calidad de la asistencia. Se resalta la escasez de literatura sobre la temática y la necesidad de estudios con alto nivel de evidencia.
Descriptores: Dermatitis del pañales; Incontinencia fecal; Incontinencia urinaria; Atención de enfermería.

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INTRODUCTION

Incontinence-Associated Dermatitis (IAD) is a common clinical manifestation in patients with urinary and/or fecal incontinence, defined as erythema and edema of the skin surface, sometimes accompanied by flacthenes with serous exudates, erosion or secondary skin infection[1].

For years it was believed that ammonia in the urine was responsible for skin damage, but studies have shown that this is a result of the alkaline pH of the urine. It is emphasized that the alkaline pH in the urine in patients with double incontinence is responsible for the activation of the enzymes proteases and lipases[2]. It is pointed out that the prolonged presence of feces and urine in contact with the skin of the individuals is an aggravating factor in the skin conditions, since there is an increase in the permeability that allows the elevation of pH, protease activity and fecal lipases, important in the etiology of dermatitis[3].

The appearance of IAD is dependent on a set of factors and its onset is related to the presence of irritant chemicals, as well as the duration and frequency of exposure, in that sense, the barrier function of the skin is compromised by chronic exposure to moisture[2].

This has a considerable effect on people's physical and psychological well-being[4] leading them to present discomfort, pain, burning, pruritus, tingling in the affected areas, excessive discomfort during care, disorder in the performance of life activities in sleep with consequent reduction in quality of life[5].

It is necessary to know the factors related to its development to establish evidence-based nursing actions and disregard practices based on intuition and non-systematized clinical experience. The best clinical evidence available for decision making, reducing the risk of complications, and improving the care and nursing care provided should be used[6].

The subject is little discussed by health professionals who care for the adult and elderly population and the nursing has provided assistance based on the experience gained with the care of children, not relying on scientific evidence to prevent the problem in adults and the elderly[7].

It is important to note that the prevention of IAD requires the health professionals to observe and constantly monitor the patient, as well as systematizing care for their prevention by applying pre-established protocols for skin protection and following recommendations based on scientific evidence[8].

Thus, the present study aimed to identify in the literature the best evidence on the risk factors for the development of IAD.

METHODS

It is an integrative literature review (ILR) carried out in six stages: identification of the theme and elaboration of the guiding question; establishment of criteria for inclusion and exclusion of studies; categorization of studies; evaluation of included studies; discussion and interpretation of the results and presentation of the knowledge review/synthesis aiming at a better understanding of the subject matter[9].

First Step: Identifying the theme and elaborating the research question.

For the development of the theme, the following question was elaborated. " What are the risk factors for the development of IAD in adult and elderly patients?"

Second Step: Establishment of inclusion and exclusion criteria.

In this stage, the databases and inclusion and exclusion criteria of the articles were defined. The search was carried out in the Virtual Health Library (VHL), Medical Literature Analysis and Retrieval System Online (MEDLINE), through the US National Library of Medicine (INMED), Cumulative Index to Nursing and Allied Health (CINAHL) and Web OF SCIENCE.

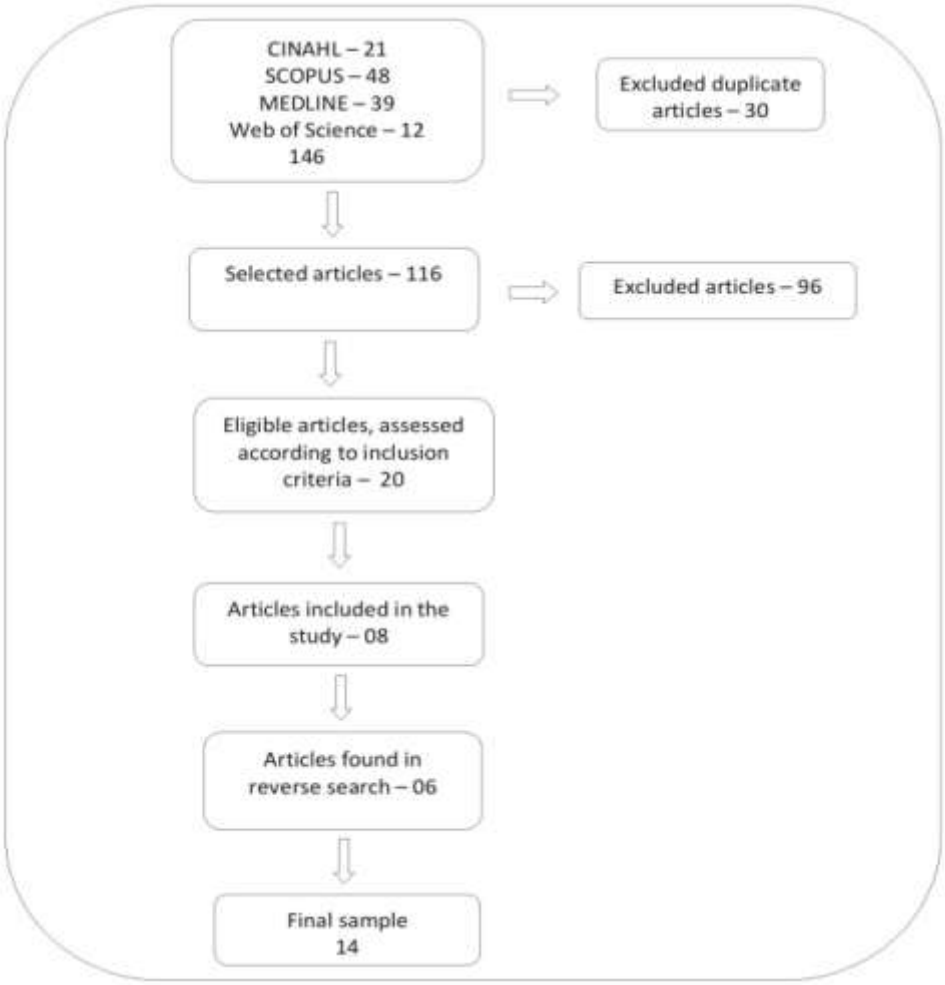
In order to search the databases, the following controlled descriptors were used by the Health Sciences Descriptors (Decs) and Medical Subject Headings (MeSH): “diaper rash”, “risk factors”, “fecal incontinence”, “urinary incontinence”, “nursing diagnosis” and “dematitis”.

All descriptors were cross-referenced for the search strategy formulation. Inclusion criteria were the complete articles published in the Portuguese, English and Spanish languages with the theme of dermatitis associated with incontinence; conducted with the adult and elderly population and published until the year 2016. We excluded from the search, articles conducted with children and adolescents and the lack of relevance to the subject. Articles published until the year 2016 were selected.

Third step: Identification of pre-selected and selected studies.

146 articles were found, that met the eligibility criteria, after reading the titles, keywords and abstracts of the 146 articles, 20 were selected for reading in full. Of the 20 articles read in full, 12 were excluded, as they did not meet the criteria, and only 08 were selected. The reverse search was also performed, and from it, other 06 related articles were identified. At the end, 14 articles were selected to compose the study sample (Figure 1). Table 1 shows the articles according to the databases.

Figure 1 - Flowchart of selection of articles.



Source: Study data, 2018.

Table 1 - Selected articles for the integrative literature review.

Data bases	Articles found	Selected articles	Sample
BVS	08	01	0
CINAHL	35	07	03
PUBMED	90	10	05
WEB OF SCIENCE	13	02	0
REVERSE SEARCH	-	-	06
Total	146	20	14

Source: Study data, 2018.

Fourth Step: Categorization of studies

The instrument proposed by Ursi, adapted by Braga[10] was used to gather and synthesize information. To identify and stratify the studies, according to the level of evidence, we chose the classification of Stetler et al.[11] For the categorization of the studies was carried out the grouping of the information and synthesis of the same.

Thus, the topic was discussed from the category created on the risk factors for IAD and three subcategories, according to the constructs identified by Brown[12]: Risk factors for IAD related to tissue tolerance, risk factors for IADs pertaining to the perineal environment and risk factors for IADs related to the ability to go to the bathroom.

Fifth Step: Analysis of Studies

This step was performed by two independent researchers who critically analyzed and classified the type of study. The results were then compared individually. The results were presented through tables and tables describing the articles evaluated, such as author, year of publication, place of study, type of study, risk factors and level of evidence.

Sixth Step: Review presentation

RESULTS AND DISCUSSION

The sample consisted of 14 studies published in English. All publications are international and originated from countries such as the United States, Germany, United Kingdom and England. The description of the studies regarding the title, authors, year and periodical of the publication, origin of the studies and objectives, their levels of evidence and the risk factors for IAD is presented in figure 2. Table 2 shows the factors of risk for IAD.

Regarding the study design, 07 (50%) were Clinical Trials, 02 (14.3%) Prevalence, 03 (21.4%) Case Studies, 01 (7.1%) Prospective Cohort and 01(7.1%) Clinical Protocol. Articles were published between 1992 and 2015. Of the 14 articles, 06 (43%) were published in the last five years. The studies presented a level of scientific evidence II (50%), III (7.1%), IV (14.3%) and V (28.5%).

Figure 2 - Description of selected studies in databases and reverse search.

Num	Title	Journal	Origin	Objective	Risk factors	Type of study	Level of evidence
1	Lyder H., et al. Structured skin care regimen to prevent perineal dermatitis in the elderly.1992	Journal of Nursing	United States	To determine the efficacy of a structured care regimen for the prevention of perineal dermatitis in incontinent patients	Urinary incontinence, Fecal incontinence, double incontinence.	Clinical Essay	II
2	Brown DS. Diapers and underpads, part 1: Skin integrity outcomes. 1994	Ostomy/Wound Manage-ment	United States	To compare the maintenance of skin integrity between patients who wear diapers and one type of absorbent.	Urinary incontinence, fecal incontinence, double incontinence; waste soap, antiseptic or detergent; heat; moisture, friction; occlusive tissue, diaper use.	Clinical Essay	II
3	Brown DS. Perineal dermatitis risk factors: Clinical validation of a conceptual framework.1995	Ostomy/Wound Manage-ment	United States	To validate pressure ulcer evaluation instruments for the evaluation of perineal dermatitis and to identify risk factors	Age, urinary incontinence, fecal incontinence, health condition, nutrition, body temperature, friction, number of incontinence episodes, impaired oxygenation and perfusion, impaired mobility, irritants, sensory perception.	Clinical Essay	II

“continues on next page”

Num	Title	Journal	Origin	Objective	Risk factors	Type of study	Level of evidence
4	Lewis-Byers K., et al. An evaluation of two incontinence skin care protocols in a long-term care setting.2002	Ostomy/Wound Manage-ment	United States	To compare the effect of two care protocols on skin condition, pain and time of care in a long-term care facility.	Urinary incontinence, fecal incontinence, double incontinence.	Clinical Essay	II
5	Bliss DZ., et al. Incontinence-associated skin damage in nursing home residents: A secondary analysis of a prospective, multicenter study.2006	Ostomy/Wound Manage-ment	United States	Describe the occurrence and severity of IAD and damage to the skin in institutionalized elderly.	Urinary incontinence, fecal incontinence, double incontinence, number / frequency of episodes, advanced age, mechanical attrition, age, white race, cognitive state, friction.	Clinical Essay	II
6	Bliss DZ., et al. Prevalence and correlates of perineal dermatitis in nursing home residents. 2006	Nursing Research	United States	To determine the prevalence and significant correlation of perineal dermatitis in elderly patients in a nursing home.	Health problems, presence of fever, need for nutritional support, perfusion and oxygenation problems, fecal incontinence, urinary incontinence, toilet capacity, age, aggressive skin cleansing.	Prevalence	IV
7	Junkin J., et al. Prevalence of incontinence and associated skin injury in the acute care inpatient. 2007	J. Wound, ostomy and continence nursing	United States	To evaluate the prevalence of incontinence and skin lesions in areas exposed to incontinence among patients hospitalized in two hospitals	Urinary incontinence, fecal incontinence, double incontinence, advanced age, fungal infection, low serum albumin (<3.4g / dl), impaired mobility, unbalanced nutrition, liquid feces, use of antimicrobial.	Prevalence	IV
8	Bliss DZ., et al. An economic evaluation of four skin damage prevention regimens in nursing home residents with incontinence.2007	J. Wound, ostomy and continence nursing	United States	To determine the cost and efficiency of four different skin damage prevention regimens in patients of a long-term institution.	Urinary incontinence, fecal incontinence, double incontinence	Clinical Essay	II
9	Beguin AM., et al. Improving diaper design to address incontinence associated dermatitis. 2010	Biomed central geriatrics	Germany	Minimize the harmful effects of the acid mantle on aged skin.	Urinary incontinence, fecal incontinence, double incontinence, friction, pH increase, old age, unbalanced nutrition.	Case study	V
10	Bliss DZ., et al. Incontinence-associated dermatitis in critically ill adults.2011	J. Wound, ostomy and continence nursing	Estados Unidos	Determinar o tempo de desenvolvimento, gravidade e fatores de risco de DAI entre pacientes críticos.	Incontinência fecal, fezes líquidas, atrito mecânico, mobilidade prejudicada, estado cognitivo diminuído, infecção fúngica, alimentação por sonda.	Coorte prospectiva	III
11	Drives DS. Perineal dermatitis in critical care patients.2014	Critical care nurse	United States	To determine the frequency with which preventive measures were used adequately and the rate of rupture of the skin in incontinent patients.	Fecal incontinence, advanced age, gender, primary diagnosis, comorbidities, impaired mobility, imbalanced nutrition, decreased cognitive status.	Clinical essay	II

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Num	Title	Journal	Origin	Objective	Risk factors	Type of study	Level of evidence
12	Holroyd S., et al. Prevention and management of incontinence-associated dermatitis using a barrier cream.2015	Community Wound Care	United Kingdom	Explore the causes, pathophysiology, identify risk factors, prevention and management of IAD, including the use of barrier creams.	Urinary incontinence, fecal incontinence, double incontinence, liquid feces, old age.	Case study	V
13	Holroyd S. Incontinence associated dermatitis: identification, prevention and care.2015	British Journal of Nursing	United Kingdom	To analyze the physiology of normal skin and the etiology of IAD versus pressure ulcer.	Urinary incontinence, fecal incontinence, double incontinence, use of diaper with incompatible size, impaired mobility, comorbidities.	Case study	V
14	Payne D. Mananging and preventing incontinence-associated dermatitis.2015	British Journal of Nursing	England	Know the causes, prevention and treatment of IAD	Urinary incontinence, fecal incontinence, double incontinence, prolonged exposure to urine and faeces, poor sanitation, impaired mobility, impaired cognitive status, inadequate diaper size.	Clinical protocol	V

Source: study data, 2018.

Table 2 - Risk factors for IAD in patients.

Risk factors	Articles	N (=14)	%
Age	03, 04, 05, 06, 07, 09, 10, 11,12, 13	10	71.4
Acute and chronic diseases	02, 03, 06, 07, 11, 13, 14	07	50.0
Urinary incontinence	01, 02, 04, 05, 06, 07, 08, 09, 12, 13, 14	11	78.5
Fecal incontinence	01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14	14	100
Double incontinence (fecal and urinary)	01, 02, 04, 05, 06, 07, 08, 09, 13	09	64.3
Number of episodes of incontinence	03, 05	02	14.3
Unbalanced Nutrition	06, 09, 11	03	21.4
Impaired Oxygenation	03, 06	02	14.3
Impaired perfusion	06	01	7.1
Friction and mechanical friction	02, 03, 05, 06, 09, 10	06	43.0
Impaired mobility	03, 10, 11, 13	04	28.6
Fever/temperature	02, 03, 06	03	21.4
Irritant agents/products	02, 04	02	14.3
Altered cognitive state	05, 06, 10, 11, 14	05	35.7
Strategies Used to Minimize Skin Damage	01,02, 03, 04, 05, 06, 07, 08, 09, 11, 14	11	78.5

Source: study data, 2018.

Risk Factors for Incontinence-Associated Dermatitis

Studies have indicated that innumerable risk factors may contribute to the development of IAD[12-25]. These can be grouped into three categories: Tissue Tolerance, Perineal Environment, and Toilet Ability[13-14].

In the studies analyzed, risk factors such as age, urinary and / or fecal incontinence and strategies adopted to minimize skin damage were the most identified[12,22].

Thus, we explored the risk factors for IAD, which were grouped in the different categories suggested by Brown[13-14].

Risk Factors for IADs related to Tissue Tolerance

Tissue Tolerance involves the intrinsic ability of the skin to tolerate the effects of the perineal, perigenital, perianal and surrounding environment without causing unfavorable sequelae in patients. Thus, the presence of diseases, nutritional changes, tissue perfusion, oxygenation and temperature, and advanced age have been associated with IAD because they involve tissue involvement[12,14].

Some studies have presented factors such as the presence of diseases[12,14,17,18,22], nutritional alterations[12,14,17,20,22], of tissue perfusion[12,14,17], oxygenation[14,17] and temperature[12,14,17].

Acute and chronic diseases, nutritional changes, perfusion, oxygenation and systemic temperature and local skin temperature cause changes in the tissue, weakening it, reducing its vascularity, resistance, its barrier function, thus increasing the possibility of damages to the skin [12,14,17,18,20-22]. It has been pointed out that patients with severe diseases have a marked increase in skin damage and those with reduced albumin levels are approximately 40 times more likely to injure in areas exposed to incontinence than patients with acceptable levels of albumin[18].

It was also observed that micronutrient malnutrition or nutritional deficiencies, common in the elderly population, can reduce responses to physical, chemical, enzymatic and microbial stimuli. Depending on the food intake, acids and basic equivalents that are excreted by the kidneys may cause variations in their composition and urinary pH, providing a change in the pH of the skin when in contact with urine[20].

Interestingly, when compared with young people, the elderly complain of less discomfort in the affected region, possibly due to the reduction in sensitivity and peripheral circulation[14]. In a prevalence study, logistic regression analysis revealed that subjects 80 years of age or older were four times more incontinent than the youngest, and that fecal incontinence was more prevalent in them than urinary incontinence[18].

Regarding the age factor, elderly patients present a decrease in the elasticity and texture of the skin as well as the rate of cellular replacement. The stratum corneum is less acidic, providing a reduced epidermal lipid synthesis. In the presence of urinary and/or fecal incontinence there is a greater possibility of developing IAD since with aging the barrier properties of the stratum corneum are affected, making it more susceptible to external stress. Once this is damaged there is a greater risk for injury and a slower recovery[14,24].

Risk Factors for IADs pertaining to the Perineal Environment

The cutaneous inflammation that occurs in the IAD occurs in the environment of the perineal, perigenital, perianal and adjacent regions when in contact with urine and feces. Thus, in the perineal environment, intrinsic and extrinsic factors such as the frequency of incontinence, the type of incontinence, mechanical friction and skin permeability may affect the region in the diaper area of patients presenting with fecal and/or urinary incontinence[12,14].

Urinary and/or fecal incontinence is considered the "key" risk for IAD[14,16-21], besides being a common problem in patients hospitalized and/or under long-term care[12,14,24].

Prolonged exposure to urine leads to hyperhydration and ammonia increases skin pH (normal pH ranges from 5.5 to 5.9), decreasing tissue tolerance. In the case of faeces exposure, the digestive enzymes lipases and proteases damage the skin and make it more exposed to the proliferation of bacteria and to the aggressiveness of ammonia in the urine [12,14-22]. However, a pilot study of a Clinical Trial has shown that individuals with dual incontinence developed dermatitis within a period of only two days since problem identification[13].

In relation to mechanical friction, it is known that the presence of friction, heat, moisture and prolonged occlusion may cause irritation. Exposure to urine and faeces moisture increases hydration, making the skin macerated and more susceptible not only to microorganism invasion, but also erosion of the stratum corneum, during repositioning and force exerted to clean feces and urine[12-23].

Numerous strategies such as hygiene, use of cleansing and moisturizing products and the use of diapers have also been reported in order to minimize skin damage, prevent and treat IADs. However, to date it is not known which are the most effective to achieve this goal. It has been found that sanitizing with the use of bar soap can damage the stratum corneum and remove the hydrolipidic layer, as well as the use of diapers and their infrequent exchange may heat up, irritate the region and in the same way that soaps , alkalinize the pH[12,13-22].

Risk Factors for IAD related to toilet skills

Individuals, adults or elderly individuals who present with acute and chronic health problems can have a functional decline with consequent loss of independence and need for institutionalization. One of the problems with this functional competence is the ability to go, independently or with assistance, to the toilet. This ability is related to the ability of the person to perceive and make a decision to go to the bathroom, even with signs of urinary and/or fecal incontinence[17,20-21, 25].

Thus, with regard to "toilet ability", impaired cognitive awareness, sensory perception and impaired mobility were highlighted as harmful factors related to tissue well-being, as they compromise functionality and lead individuals to develop injury[12,14,17].

The literature review allowed us to verify that the available scientific evidences demonstrate that to prevent IAD it is necessary that risk factors are identified, understood and monitored. In fact, it is not all incontinent patients who develop this dermatitis, however, this condition must be prevented with the implementation of nursing interventions and care. Thus, to care for incontinent patients, it is necessary to have knowledge about the risk factors of this condition[13-14].

The results corroborate that few studies have been developed on the risk factors for IAD in the adult and elderly population. In this review, a small number of studies with a strong design such as Clinical Trials (07-50%) were observed, demonstrating the need for further studies to be conducted to test the different possible care strategies. In this sense, the correct hygiene, with the appropriate use of cleaning and hydration products and the use of diapers should be better studied to meet the needs of patients with IAD.

Risk factors were grouped into constructs suggested by Brown[12,14] and elucidated during the course of the study, aiming at the recognition of these factors for the prevention of dermatitis.

In relation to the category Tissue Tolerance[12,14], age was pointed out as a significant factor, since it has been associated with a decrease in elasticity, texture, cell replacement rate and skin healing process, as well as reduction of sensitivity and peripheral circulation. The elderly are particularly vulnerable to IAD due to the lower amount of layers of stratum corneum, as there is a gradual decline in the barrier function[14-18,20-22].

Patients with chronic diseases are more likely to develop IAD and those with impaired nutrition have a greater risk both for the development of lesions and for the greater difficulty of cicatrization of the skin[12,14,17-18,20-22]. Patients with low albumin are more prone to injury in areas exposed to incontinence when compared to patients with normal albumin[20]. In this sense, hypoalbuminemia is also an indication of poor nutritional status.

Alteration in tissue perfusion and oxygenation can impair maintenance of the dermis, which is highly vascularized and plays an important role in controlling body temperature through dilation of blood vessels[12,14,16]. The fever indicating an acute pathological condition had a stronger association with dermatitis, imposing a 40% probability of developing it[16].

Regarding the local temperature, this can be increased by factors such as use of diapers, bedding or clothing. Diapers prolong occlusion, increasing temperature, local humidity, pH and contribute to dermatitis[12,17].

As for the Perineal Environment category, factors such as urinary incontinence, prolonged or repeated exposure lead to hyperhydration of the skin and the ammonia present in the urine increases the pH of the skin, reducing the tissue tolerance to friction, shear and pressure. In relation to fecal incontinence, the digestive enzymes (proteases and lipases) present in feces irritate the tissue, since the enzymatic activity of the same is exacerbated in the presence of an alkaline pH. Liquid stools are more irritating than solid ones because they usually come in contact with a larger area of skin and contain more bile salts and pancreatic lipases, leaving the skin even more sensitive and vulnerable to the action of ammonia[12,13-22].

Friction and mechanical friction are factors that affect fragile skin and can mainly attack the skin of the elderly[12,14,16,17,20-21]. In this sense, wet occlusion can cause increased skin friction, while hyperhydration and increased pH may impair its barrier function, thereby allowing fecal enzymes to attack it[12].

Strategies used to minimize the risk of damage to the skin, such as hygiene, use of cleansing and moisturizing products, and the use of diapers can also contribute to IAD. Skin friction with diapers and other products used to contain urine and feces, as well as improper sanitizing and infrequent changing of diapers can cause damage and compromise skin's ability to limit unwanted absorption of chemicals and micro-organisms pathogenic[12-13,25]. The size of diapers should be appropriate for the patient to contain urine and faeces and an improperly fitted diaper around the legs and waist may increase the risk of IAD[24-25]. The use of diapers with breathable materials can minimize hyperhydration of the stratum corneum and reduce the negative impact of incontinence on the skin[20].

The use of bar soaps, cleansers, and moisturizing products may, in addition to changing the pH of the skin, also damage the

stratum corneum and remove the lipids. The use of diapers, cushions and restraint with underwear can warm the environment and also change the pH. In this sense, it is recommended to use a pH-balanced cleanser as it minimally disrupts the pH of the skin and the surfactants help eliminate skin residues without promoting friction[15].

The installation of an intensive care regimen with the skin is imperative, in which monitoring, cleaning, washing and drying are necessary[13,15-16]. The need to use quality barrier products to reduce the IAD rate[19]. In a clinical trial, it was concluded that to define preventive measures, factors such as the ease of use of the products and their effectiveness should be considered, since following a care protocol is of paramount importance for determining effective intervention[22].

Brown [13] reports a third construct that involves the ability to go to the bathroom. He argues that altered cognitive status may impair the ability to go to the bathroom, which is hampered by decreased mobility[14,21-22], impaired sensory perception and impaired cognitive awareness[16-17, 21- 22].

Mobility and activity consist in the control of the body movements to modify the position of the body and, thus, to change the pressure, also aiding in the elimination of excreta. As for sensory ability, perception is required to induce movement in response to perineal stimuli. Already the cognitive capacity involves the necessary condition to act based on perceived stimuli in the area of incontinence[12]. These capabilities should be monitored.

It is believed that early identification of the risk factors of IAD enables nurses and their team to prevent injuries, increasing the possibility of providing quality care, comfort and well-being to the patient, including a reduction in length of hospital stay and hospital expenses. Thus, the results of this study demonstrate that it is necessary to constantly monitor and monitor patients through a careful evaluation of the skin.

CONCLUSION

The studies available and analyzed in this LIR show that, in order to prevent IAD, it is necessary that risk factors be identified early to avoid harm to the patient. The study showed that factors such as age, morbidity, nutrition, oxygenation, perfusion, temperature, fecal and / or urinary incontinence, mechanical friction, skin permeability, use of certain strategies of care, cognitive ability and skin evaluation are decisive for the development of IAD. The risk factors for IAD can still be grouped into three categories: Tissue Tolerance, Perineal Environment, and Bathroom Skills.

The role of nurses and their team in the early identification, prevention and treatment of IAD is essential, considering that these professionals directly and daily take care of the population most predisposed to the problem. Prevention strategies such as the effective training of the nursing team for the prevention and treatment of IAD, the use of a care protocol that involves adequate hygiene, the use of adequate barrier products and hydration, as well as the choice of diaper compatible with the need for the patient should be established and researched because, in the present study, it was identified the need for new studies with a high level of scientific evidence to be made to support a quality care developed by the nurse and their team.

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