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Quality of care in an intensive care unit for the prevention of pressure injuries

Qualidade da assistência em uma unidade de terapia intensiva para prevenção de lesão por pressão

Calidad de asistencia en una unidad de cuidados intensivos para prevenir lesiones por presión

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ABSTRACT

Objective: to identify safe practices for the prevention of pressure injury (PI), performed by nurses in an intensive care unit (ICU) and to classify the quality of care. **Method:** cross-sectional study conducted with 11 nurses in an ICU of a hospital in Fortaleza - Ceará, using a pressure injury prevention questionnaire adapted for pediatrics, in October and November 2018. Descriptive statistics and the Positivity Index (PIx) of the quality of care were used. **Results:** there was a poor assistance, according to the PIx, in the three domains: preventive measures and early detection of LP (PIx: 66.6% + 24.5); pressure relief measures (PIx: 41.9% + 21.6) and assessment and notification (PIx: 65.1% + 14.5), with a general average PIx equal to 57.8% (Standard Deviation: +13 , 8), and preventive actions carried out inappropriately. **Conclusion:** it was possible to identify scarce good practices, which implies poor and insecure assistance. It is urgent to plan and implement improvement strategies with a view to patient safety and quality of care.

DESCRIPTORS: Pressure injury; Stomatherapy; Patient safety; Nursing care; Quality of health care.

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RESUMO

Objetivo: identificar as práticas seguras para prevenção de lesão por pressão (LP), realizadas por enfermeiros em uma unidade de terapia intensiva (UTI) e classificar a qualidade da assistência. **Método:** estudo transversal realizado com 11 enfermeiros de uma UTI de um hospital em Fortaleza – Ceará, por meio de um questionário de prevenção de lesão por pressão para pediatria adaptado, em outubro e novembro de 2018. Utilizaram-se estatística descritiva e o Índice de Positividade (IP) da qualidade da assistência. **Resultados:** verificou-se uma assistência sofrível, segundo o IP, nos três domínios: medidas preventivas e detecção precoce de LP (IP: 66,6%+24,5); medidas de alívio de pressão (IP: 41,9%+21,6) e avaliação e notificação (IP: 65,1%+14,5), com IP médio geral igual a 57,8% (Desvio Padrão: +13,8), e ações de prevenção realizadas de forma inadequada. **Conclusão:** foi possível identificar boas práticas escassas, o que implica em uma assistência sofrível e insegura. É urgente o planejamento e a implementação de estratégias de melhorias com vistas à segurança do paciente e qualidade da assistência.

DESCRITORES: Lesão por pressão; Estomaterapia; Segurança do paciente; Cuidados de enfermagem; Qualidade da assistência à saúde.

RESUMEN

Objetivo: La lesión por presión es un indicador de la calidad de la atención considerada un evento adverso evitable. Por tanto, es importante que las enfermeras realicen medidas preventivas. El objetivo fue identificar prácticas seguras para la prevención de lesiones por presión realizadas por enfermeros en una unidad de cuidados intensivos y clasificar la calidad de la atención. Estudio transversal realizado con 11 enfermeros de una unidad de cuidados intensivos de un hospital de Fortaleza-Ceará, utilizando un cuestionario adaptado de Prevención de Lesiones por Presión para Pediatría, en octubre y noviembre de 2018. Se utilizó estadística descriptiva y el Índice. Positividad de la calidad (IP). El estudio fue aprobado por el comité de ética con el dictamen 2.931.257. Encontró una asistencia pobre, según el IP, en los tres dominios: Medidas preventivas y Detección temprana de LP (IP: 66,6% + 24,5); Medidas de alivio de presión (PI: 41,9% + 21,6) y Evaluación y notificación (PI: 65,1% + 14,5), con un PI medio general igual al 57,8% (DE: +13, 8), y acciones preventivas realizadas de manera inadecuada. Se pudo identificar buenas prácticas escasas, lo que implica una atención deficiente e insegura. Es urgente planificar e implementar estrategias de mejora con miras a la seguridad del paciente y la calidad de la atención.

DESCRIPTORES: Lesión por presión; Estomaterapia; Seguridad del paciente; Cuidado de enfermera; Calidad de la asistencia sanitaria.

INTRODUCTION

For the World Health Organization (WHO), quality means a high level of professional excellence, efficient use of resources, minimal risk for the patient, a high degree of patient satisfaction and final health outcomes[1].

In this sense, pressure injury (LP) is an indicator of the quality of nursing care as it is considered an avoidable adverse event. Thus, it is important that professionals carry out good practices with a view to patient safety. Preventive measures can reduce the occurrence of this adverse event that is closely linked to patient safety[2].

The WHO defined patient safety as the reduction to the minimum acceptable risk of unnecessary harm during health care and recognizes LP as an adverse event[3]. Adverse events can lead to undesirable complications, which compromises patient safety and represents one of the biggest challenges for quality in the health sector[4].There are innumerable damages to the patient due to LP, such as: pain, high risk of sepsis, increased length of hospital stay and mortality rate, inevitability of surgical corrections and increased hospital costs[5].

International studies show that the incidence rates of LP in an intensive care unit (ICU) can vary from 8.1% to 39.3%[6,7]. In Brazil, studies carried out in the ICU show that these rates vary between 10.8% to 47%[8,9].

In this context, the National Health Surveillance Agency (Agência Nacional de Vigilância Sanitária-ANVISA) developed and disseminated a protocol aimed at good practices for the prevention of PL in the health service, preventing risks and adverse events[10].Good practices are the set of techniques, processes, procedures and activities identified, used, proven and recognized by various organizations in a given area of knowledge, as being the best in terms of merit, effectiveness and success achieved by their application in carrying out a task , in this case the prevention of LP[11].

In this way, the nurse who is directly connected to care is also responsible for patient safety and patient skin care, promoting health and preventing complications, errors and adverse events when performing good practice actions[10]. Considering LP as an indicator of nursing care quality, reducing its number is a primary role of the nursing team through continuous prevention strategies and actions[12].

Given the importance and impact of LP and because it is considered an adverse event that can be prevented through good practices in health services, the following question arose: what LP prevention actions are being carried out in the ICU?

It is believed that the present study may provide important information for evaluation and opportunities for improvement for nurses, managers and the health team, with a view to reducing adverse events through effective prevention strategies and safe practices related to LP.

Given the above, the objective was to identify safe practices for the prevention of LP performed by nurses in the ICU and to classify the quality of care.

METHODS

Cross-sectional study with a quantitative approach, carried out in an ICU of a public reference hospital in the area of cardiology and pulmonology in Fortaleza - Ceará, in the months of October and November 2018.

The population consisted of 70 nurses who worked in the ICU. It should be noted that 18 nurses were on vacation or on leave, 37 did not return the questionnaires until the agreed deadline, even though this time was extended for another 5 days, and 4 refused to participate in the research.

The sample consisted of 11 nurses. The recruitment to compose the sample was carried out based on the inclusion criteria: having been an assistant nurse for at least six months and being available to complete the questionnaire. Nurses who were on vacation, on leave or away from their activities during the data collection period were excluded.

A form with sociodemographic and professional data and the adapted pediatric pressure injury prevention questionnaire (PPIP) was used[13]. This instrument was built according to the "Protocol for the Prevention of Pressure Ulcers" of the Ministry of Health14 for the evaluation of preventive actions in pediatrics, but it presents care that does not differ between children and adults. For this reason, we opted for its use, since it had good validity (Intraclass Correlation Coefficient - ICC = 0.983) and reliability (Cronbach's alpha = 0.938)[13].

This questionnaire has 23 items divided into 3 domains, namely: preventive measures and early detection of LP (9 items); pressure relief measures (8 items) and assessment and notification (6 items), distributed on a Likert scale from 1 to 5[13].

The data were tabulated and organized in a Microsoft Excel® spreadsheet, analyzed using simple descriptive statistics and presented in tables, according to the domains of the scale used.

For the assessment of quality of care, Haddad (2004)[15] proposed an instrument that assesses the structure, the process and the result, providing a roadmap for assessing the reality of the service offered to the patient in relation to comprehensive nursing care. This assessment highlights the reality of the service and provides subsidies for planning interventions in order to improve the quality of care.

In addition, once the interventions performed by the professionals were identified, the quality of care and good practices were analyzed using the Positivity Index (PIx) and Quality of Care (QC)[15].

To classify the QC, the data were analyzed according to the PIx, which refers to the percentage of positive responses, and classified into: desirable assistance (100% positivity); adequate assistance (90 to 99% positivity); safe assistance (80 to 89% positivity); borderline assistance (71 to 79% positive); and poor care (less than 70% positive)[15]. A positive response on the Likert scale was considered "it always does this conduct in its daily work", since safe practices must always be present in health care, contributing to patient safety.

The study followed Resolution 466/2012 of the National Health Council[16] and it was approved by the Ethics Committee in Research with Human Beings under opinion No. 2,931,257 and CAAE No. 97887618.2.0000.5039.

RESULTS

Table 1 shows the data referring to the sociodemographic and professional profile of nurses who responded to the LP prevention action questionnaire.

Most participants were composed of women (54.5%), but there is a balanced number between men and women, different from what is expected in nursing. The average age was 33 (±5.1) years, showing a profile of young professionals; 6.4 (±5.2) years for training, and 3.5 (±3.9) years on the length of experience in the service, with some professionals experience emerging. Of the participants, 2 (18.1%) were stomatherapist nurses.

Table 1. Sociodemographic characteristics of nurses. Fortaleza (CE), Brasil – 2018.

Gender	N (%)	Medium +SD
Female	6 (54.5)	
Male	5 (45.5)	
Age	**N (%)**	**Medium +SD**
27-30	4 (36.4)	33 ±5.1
31-34	4 (36.4)	
35-38	1 (9.0)	
39-42	2 (18.2)	
Training time (years)	**N (%)**	**Medium +SD**
Less than 5 years	5 (45.4)	6.4 ±5.2
5-10 years	4 (36.4)	
Over 10 years	2 (18.2)	
Length of service (years)	**N (%)**	**Medium +SD**
Less than 1 year	4 (36.4)	3.5 ±3.9
1-5 years	4 (36.4)	
6-10 years	2 (18.2)	
Over 10 years	1 (9.0)	
Postgraduate studies	**N (%)**	**Medium +SD**
Specialization	4 (36.3)	
Master's degree	1 (9.0)	
Work shift	**N (%)**	**Medium +SD**
Morning	1 (9.0)	
Morning and afternoon	10 (91.0)	

SD = Standard deviation. *Two are specialist nurses in stomatherapy.

Regarding domain 1, preventive measures related to good practices and early detection of PI, it was found that 10 (90.9%) nurses always clean the skin and hydrate the dry skin; 9 (81.8%) always inspect patients' skin on admission; and 4 (36.3%) avoid massaging areas of bony or hyperemic prominence.

Domain 2 presents the data for pressure relief measures and shows that only 5 (45%) nurses always performed decubitus changes every 2 hours, as well as providing support surfaces for calcaneus, revealing a low indicator of important PI prevention measures.

The actions of offering support under the feet of the patients and providing a pressure redistribution surface are pointed out by 6 (54%) nurses, showing little concern in avoiding friction with the bed and redistribution and pressure relief, in order to promote effective circulation in patients' lower limbs.

Regarding the communication of pressure relief measures, only 1 nurse claimed to use a notice board and 3 (27%) reported that this measure does not apply, perhaps due to the lack of this instrument in the studied place.

Regarding domain 3, assessment and notification of PI, the assessment of the risk of PI on admission and daily reassessment, using the Braden Scale, obtained adherence from 8 (72.7%) and 7 (63.6%) nurses, respectively, presenting good PIx.

When asked about assessing clinical signs of malnutrition and notifying the nutritionist about the nutritional risk, only 6 (54.5%) nurses assess the patient's nutritional status, identifying nutritional needs.

The registers in the medical record about the changes detected in the skin and interventions was indicated by 10 (90.9%), demonstrating that there is communication between the staff through the medical record. Also on communication, 6 (54.5%) nurses reported notifying the Risk Management or Patient Safety Center about the detection of PI.

Table 2. Positivity index of pressure injury prevention practices in an intensive care unit. Fortaleza (CE), Brasil – 2018.

Itens	Never	Almost never	Sometimes	Almost always	Always	Not applicable	PIx
Preventive measures and early detection of LP	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	
1-Inspection of skin on admission	-	-	-	2 (18.2)	9 (81.8)	-	81.8
2-Daily skin inspection	1 (9.1)	-	-	3 (27.3)	6 (54.5)	1 (9.1)	54.5
3-Skin cleansing	-	-	-	1 (9.1)	10 (90.9)	-	90.9
4-Guidance on skin cleansing	1 (9.1)	-	3 (27.3)	-	6 (54.5)	1 (9.1)	54.5
5-Hydration of dry skin	-	-	-	1 (9.1)	10 (90.9)	-	90.9
6-Avoid massaging areas of bony or hyperemic prominence	1 (9.1)	1 (9.1)	1 (9.1)	3 (27.3)	4 (36.4)	1 (9.1)	36.3
7-Protects skin from exposure to excessive moisture	-	-	1 (9.1)	1 (9.1)	8 (72.7)	1 (9.1)	72.7
8-Avoids positioning the patient directly on catheters	-	-	-	1 (9.1)	10 (90.9)	-	90.9
9- Uses covers to protect skin	-	1 (9.1)	4 (36.4)	2 (18.2)	3 (27.3)	1 (9.1)	27.2
Pressure relief measures	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**PIx**
10-Decubitus change every 2 hours	-	-	2 (18.2)	3 (27.3)	5 (45.4)	1 (9.1)	45.4
11-Performs the repositioning of the patient with non-invasive ventilation	-	-	1 (9.1)	2 (18.2)	7 (63.6)	1 (9.1)	63.6
12-Provides support under the patient's feet	-	-	1 (9.1)	3 (27.3)	6 (54.5)	1 (9.1)	54.5
13-Provides pressure redistribution surface	-	-	-	5 (45.5)	6 (54.5)	-	54.5
14-Provides heel support surfaces	-	2 (18.2)	1 (9.1)	2 (18.2)	5 (45.4)	1 (9.1)	45.4
15-Provides pressure redistribution seat	1 (9.1)	2 (18.2)	1 (9.1)	-	1 (9.1)	6 (54.5)	9.0
16-Uses liner or lifting device to move patient	-	1 (9.1)	1 (9.1)	1 (9.1)	6 (54.5)	2 (18.2)	54.5
17- Uses note boards	1 (9.1)	2 (18.2)	2 (18.2)	2 (18.2)	1 (9.1)	3 (27.2)	9.0
Assessment and Notification	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**PIx**
18-Evaluates the risk of Pressure Injury at admission using the Braden Scale	-	1 (9.1)	2 (18.2)	-	8 (72.7)	-	72.7
19-Daily reassess the risk of Pressure Injury using the Braden Scale	-	-	1 (9.1)	2 (18.2)	7 (63.6)	1 (9.1)	63.6
20-Evaluates clinical signs of malnutrition	-	-	1 (9.1)	4 (36.4)	6 (54.5)	-	54.5
21-Notifies the nutritionist of the nutritional risk	-	1 (9.1)	1 (9.1)	3 (27.3)	6 (54.5)	-	54.5
22-Registers changes in the skin and interventions in the medical record	-	1 (9.1)	-	-	10 (90.9)	-	90.9
23-Notifies the Risk Management or Patient Safety Center.	1 (9.1)	1 (9.1)	2 (18.2)	1 (9.1)	6 (54.5)	-	54.5

PIx = Positivity Index.

It is noteworthy that the instrument contained a space for nurses to freely write other actions taken to promote patient safety regarding the prevention of PI, but no professional mentioned any other action taken.

Regarding PIx, of the 9 items in domain 1, 3 items obtained PIx greater than 90% (adequate assistance) and 1 item obtained PIx between 80 and 89% (safe assistance). The average PIx was 66.6% (±24.5), ranging from 90.9 to 27.2%, and is therefore classified as poor.

All items in domain 2 obtained PIx less than 63.6%, with an average of 41.9% (±21.6), considered poor assistance, with the actions "Providing pressure redistribution seat" and "Uses notice board" being the worst PIx (9.0%).

The PIx of domain 3 of the PPIP instrument, "Assessment and Notification", also reached a classification considered as poor assistance, 65.1% (+14.5), although 2 items, 22 and 18, reached PIx of 90.9 % (adequate assistance) and 72.7% (borderline assistance), respectively.

Considering the full scale, it can be said that the care related to good practices for the prevention of PI can be classified as poor, since they obtained a general average PIx equal to 57.8% (±13.8). A worrying indicator, as it points to a low percentage of carrying out important measures that guarantee the assessment of risks and the implementation of actions aimed at reducing errors and damage to patients. Furthermore, there is a need for more investment in materials and training for the health staff.

DISCUSSION

Domain 1: preventive measures and early detection of pressure injuries

It was found that 81.8% of nurses performed *Inspection on the patient's skin upon admission*. Thus, it is classified as safe care, considering that most nurses performed this assessment. In contrast, only 54.5% continue this inspection daily, being classified as poor assistance. Some of the actions most performed by nurses found in the present study were *Skin cleansing and Hydration of dry skin*.

Data corroborated by a bibliographic study, regarding preventive measures, preventive actions were mentioned that include inspection, hygiene and hydration[17]. On the other hand, in another integrative review study, skin cleaning was rarely mentioned and recognized as a care for the prevention of PI, although nursing is working daily to clean the skin of patients[18]. The same study indicated that approximately 60% of nursing professionals hydrate patients' skin. This care is an important preventive measure to be taken by the nursing team. However, when comparing two groups of patients, the group without PI received this care more often when compared to the group with PI[18].

Most nurses in this study avoid placing the patient directly on catheters to prevent the development of pressure injury related to medical devices (PIRMD). The simple placement of a medical device is already the starting point for the formation of an PIRMD. It is observed that critically ill patients are more susceptible to developing injuries due to the use and duration of the device, due to poor tissue perfusion caused by the use of vasoactive drugs[19].

The PIx in domain 1 evidenced poor assistance and the need for investments in training and encouraging professionals to carry out preventive measures, as it is less expensive and has less impact on the patient.

Domain 2: pressure relief measures

In the actions of domain 2, the data obtained showed low adherence by professionals to all items, revealing a low indicator of an important measure for relieving pressure on bone prominence and adequate tissue circulation, as well as to avoid friction with the bed.

The item *Performs the repositioning of the patient with non-invasive ventilation* obtained greater adherence (63.6%) from professionals, and the items *Provides pressure redistribution seat* and *Uses note boards*, less adherence (9%).

Studies indicate that the most adopted measure for preventing PI in ICU patients is the change in decubitus[20,21]. Therefore, these data reinforce the need for continuous professional training and better sizing of professionals to meet the needs of the units and periodic updates.

The places with the greatest predisposition for the development of PI are the sacral region and the calcaneus, anatomical locations that can be protected. There are non-modifiable factors that pose significant risks, but the vast majority of them can be avoided if the nursing team acts in a qualified manner[21,22].

Domain 2 obtained the lowest PIx (41.9%), classified as poor assistance. Indicating a low rate for measures that are essential for the prevention of PI, and exposing the real need for the institution to invest in continuing education and materials for the effective implementation of pressure relief measures.

Domain 3: evaluation and notification

In this domain, only 1 item presented adequate assistance, *Registers changes in the skin and interventions in the medical record* (90.9%), and the average PIx of that domain revealed poor assistance, despite the fact that the records and notifications are significant and essential for care sectors, and it should be noted that preventive PI measures are an integral part of the Patient Safety Program[23].

The Braden Scale is a useful tool, easy to handle, at no cost to the institution and used as a health indicator in patient safety, which helps nurses to carry out a global assessment of the risk of developing PI in hospitalized patients.[12].

The data obtained in the present study showed that nurses need to evaluate and reassess their patients more in order to identify existing risks by means of scales for the development of PI early and, thus, implement individualized care at any level of health care.

Research carried out in a municipality in the north of Rio Grande do Sul revealed that, in the nurses' judgment, the Braden scale is considered an important and useful instrument in the prevention of PI. However, the lack of time and the high load of activities favors its application, often only to comply with the institution's protocol, without a real assessment of the patient.[12].

The present study found that 72% of nurses use the Braden scale on patient admission and 63% use it daily in the reassessment. These data are still considered as borderline or poor assistance, showing the need to find improvement strategies for good practices in health care and, in particular, this simple measure.

The use of the Braden Scale to assess the patient's risk of developing a PI demonstrated that all patients admitted to the ICU had some risk, whether low, moderate or high[24]. In this sense, the application of the Braden Scale by nurses directs nursing interventions in preventing PI[17]. That is why the importance of risk assessment by nurses in the ICU with a view to planning these actions.

Difficulties are also perceived in the analysis of the subscales of the Braden Scale, with the optimization of the use of the scale as well as the correct interpretation of the scale by the professionals being imperative and the incentive for the whole team to carry out preventive measures based on the risks that the scale reveals about a given patient[25].

Thus, periodic training of the team is necessary to provide support for the implementation of strategies aimed at reducing PI in these units[24].

Records and notifications are configured as significant and effective subsidies for effective care management and risk management. Therefore, it is necessary to invest and encourage professionals to register and report adverse events[23].

If there is no effective notification of such adverse events, there is no way to obtain real epidemiological data or assess the aspects involved. In the absence of records, there is weakness in studies on the subject and the declassification of the assistance provided. The importance of notification is reinforced as an opportunity to improve preventable damage during healthcare, which deserves to be reviewed and reinforced among these professionals. The team must act in a more integrated and interdisciplinary way with a view to better health care for the patient.

Considering the full scale, it can be said that care related to the prevention of PI was classified as poor care, a worrying indicator, as it points to a low percentage of carrying out simple and important measures that guarantee the risk assessment and the implementation of actions to reduce errors and damage to patients.

Having poor care means that the Risk Management processes related to health technologies, encompassing actions and services of the National Patient Safety Program at the hospital level, are with indicators below the expected for safe care.

Thus, for a safe care practice, the Ministry of Health guides the use of protocols, local patient safety plans in health facilities, creation of patient safety centers and incident notification system[2].

Among the strategies for improving the implementation of best practices, it is recommended to provide education on prevention and treatment of PI, at the organizational level, as part of a plan to improve QC to reduce the incidence of PI[26]. Based on the above, the practice based on scientific evidence should start during the training of nurses, being a key factor for enabling and implementing care in the prevention and management of PI[27].

It is noticed that there is still much to be done from the perspective of quality to improve the care provided, with a focus on processes that ensure patient safety[1].

As limitations, there is the use of validated instruments specific to the adult population and data collection with a reduced number of nurses.

CONCLUSION

It was possible to identify that the good practices related to the prevention of PI are not carried out or have deficits in their performance by nurses. The use of a valid and reliable questionnaire made it possible to measure the frequency of performance of good practices as well as the PIx of QC related to the performance of good practices for the prevention of PI.

It was found that, in general, all preventive measures need improvement or even implementation, since assistance in relation to the prevention of PI was classified as poor. However, there is an appropriate assistance in terms of: cleaning the patient's skin, hydrating the dry skin, avoiding positioning the patient directly on catheters and recording in the medical record about changes detected in the skin and interventions. Safe assistance was related to skin inspection at the patient's admission and borderline assistance with items on skin protection from exposure to excessive moisture and risk assessment of PI at admission using the Braden Scale.

Investments in continuing and permanent education are suggested through strategies that go beyond technical information, such as communication, emotional intelligence, teamwork, leadership, decision making and perception of the situation with a view to raising awareness and engaging professionals to offer quality on the assistance provided.

AUTHOR'S CONTRIBUTION

Conceptualization: Rebouças RO, Carvalho REFL and Oliveira SKP; Methodology: Rebouças RO, Marques ADB, Figueiredo SV, Carvalho REFL and Oliveira SKP; Research: Rebouças RO, Carvalho REFL and Oliveira SKP; Writing - First version: Rebouças RO, Belchior AB, Marques ADB, Figueiredo SV, Carvalho REFL and Oliveira SKP; Writing - Review & Editing: Belchior AB and Oliveira SKP. Supervision: Oliveira SKP.

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