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RISK OF BED FALLS IN ADULT PATIENTS AND PREVENTION MEASURES

RISCO DE QUEDA DO LEITO DE PACIENTES ADULTOS E MEDIDAS DE PREVENÇÃO

RIESGO DE CAÍDAS DE LA CAMA EN PACIENTES ADULTOS Y MEDIDAS DE PREVENCIÓN

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ABSTRACT

Objective: to analyze the adequacy between the evaluation of the risk in adult patients' fall and the prevention measures adopted. **Method:** this is a descriptive, cross-sectional study with a quantitative approach. The sample consisted of 1,408 patients from a public university hospital. Data were collected through the application of the Morse Scale and evaluation of bed fall prevention measures. The data were tabulated in the Microsoft Office Excel 2010 program and for statistical analysis the SPSS Program version 2.1 was used. Descriptive analyzes and chi-square test were performed, considering a p-value <0.05. **Results:** patients older than 60 years old had a higher risk of falls (33.9%). The individuals classified as having high risk were those who were connected to venous devices (90.1%), those with a previous history of falling (59.9%) and with a disoriented state of mind (34.0%). The prevention measures were adequate in 91.0%. **Conclusion:** knowing the risks of falling and the quality indicators, associated with the awareness and training of professionals are essential measures in the prevention of incidents and adverse events. **Descriptors:** Accidents by Falls; Nursing Care; Patient Safety.

RESUMO

Objetivo: analisar a adequação entre avaliação de risco de queda de pacientes adultos e as medidas de prevenção adotadas. **Método:** estudo descritivo, transversal, de abordagem quantitativa. A amostra foi composta por 1.408 pacientes de um hospital universitário público. A coleta de dados ocorreu por meio da aplicação da Escala de Morse e avaliação das medidas de prevenção de queda do leito. Os dados foram tabulados no programa *Microsoft Office Excel 2010* e para análise estatística utilizou-se o Programa SPSS versão 2.1. Foram realizadas análises descritivas e aplicação do teste Qui-Quadrado, considerando um *p-valor*<0,05. **Resultados:** pacientes com idade superior a 60 anos apresentaram maior risco de queda (33,9%). Os indivíduos classificados com alto risco foram os que estavam conectados a dispositivos venosos (90,1%), os que apresentaram histórico de queda anterior (59,9%) e com estado mental desorientado (34,0%). As medidas de prevenção estavam adequadas em 91,0%. **Conclusão:** conhecer os riscos de queda e os indicadores de qualidades, associado com a sensibilização e capacitação dos profissionais, são medidas imprescindíveis na prevenção de incidentes e eventos adversos. **Descritores:** Acidentes por Quedas; Cuidados de Enfermagem; Segurança do Paciente.

RESUMEN

Objetivo: analizar la adecuación entre evaluación de riesgo de caída de pacientes adultos y las medidas de prevención adoptadas. **Método:** estudio descriptivo, transversal, de enfoque cuantitativo. La muestra fue compuesta por 1.408 pacientes de un hospital universitario público. La recolección de datos fue por medio de la aplicación de la Escala de Morse y evaluación de las medidas de prevención de caídas de la cama. Los datos fueron tabulados en el programa *Microsoft Office Excel 2010* y para análisis estadística se utilizó el Programa SPSS versión 2.1. Fueron realizadas análisis descriptivas y aplicación del test Chi-Cuadrado, considerando un *p-valor*<0,05. **Resultados:** pacientes con edad superior a 60 años presentaron mayor riesgo de caída (33,9%). Los individuos clasificados con alto riesgo fueron los que estaban conectados a dispositivos venosos (90,1%), los que presentaron histórico de caídas anteriores (59,9%) y con estado mental desorientado (34,0%). las medidas de prevención estaban adecuadas en 91,0%. **Conclusión:** conocer los riesgos de caídas y los indicadores de calidades, asociado con la sensibilización y capacitación de los profesionales, son medidas imprescindibles en la prevención de incidentes y eventos adversos. **Descriptor:** Accidentes por Caídas; Cuidados de Enfermería; Seguridad del Paciente.

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INTRODUCTION

Patient falls in the hospital environment are a major problem for health organizations worldwide, since the repercussions of this event on the health of the individual can result in an increase in hospitalization time, worsening of the clinical picture and even death^{1,2} as well as emotional and social consequences.³ This is an incident that has mobilized researchers in the search for instruments that can assess patients at increased risk, with the aim of establishing preventive measures to mitigate it.¹

The World Health Organization (WHO) defines the fall as an event that inadvertently leads the individual to the ground or a lower level. It is estimated that 391,000 people died in 2002 because of falls, making it the second leading cause of death resulting from unintentional injury after traffic accidents.⁴

The WHO points out that at the global level, adults over 70 years old and especially women, have a significantly higher mortality rate related to falls than younger adults. However, children under 15 years have more morbidity.⁴

Falling is an unexpected, usually unintentional, traumatic, multifactorial, and often recurrent event in the same individual and the associated risk factors can be classified as intrinsic and extrinsic.¹⁻³

As intrinsic factors, there are the changes in the physical, biological and psychological functioning of the individual, the appearance of chronic and musculoskeletal disorders, altered the balance, vision, and hearing related to age, which predisposes the person to situations of greater fragility. Extrinsic factors are associated with the environment, such as inadequate lighting, slippery floors, lack of adaptations in toilets and uneven surfaces.¹⁻²

Given the repercussions for the quality of life of the patient, the problem of falls in the hospital environment has been researched worldwide.⁵ A study developed in a Brazilian university hospital identified the occurrence of tissue injuries of different intensities, orthopedic traumas characterized as bruises and fractures, as well as consequences that caused changes in the physical and mental state of the patients, as well as loss of consciousness.⁶

Besides the consequences of this event for the health of the patient, they still contribute to the increase of hospital costs, since the fall can increase the costs of hospitalization by 61% due to the average increase in the time of permanence in 12, 3 days and the treatment of the damages resulting from this incident.⁷

Because of the consequences of patients' healthy lifestyles, falling prevention has been treated as a matter of priority in health institutions² and it is part of the global patient safety movement that began in the 1990s and culminated, in Brazil, with the publication of the Ministerial Ordinances and Resolutions of the Collegiate Board of Directors (RDC) in 2013 which determine the adoption of a policy focused on patient safety by health institutions as well as protocols for Related to the Six International Goals of Patient Safety, one of them being the Prevention of Falls, which is an indicator of quality of care.⁸

Ordinance N° 2,095, dated September 24, 2013, which approved the basic protocols for patient safety, with the Protocol for the Prevention of Falls determines the need to evaluate all patients regarding the risks of falls, followed by the elaboration and prescription of preventive measures according to the risk of each.⁹

The adoption of instruments that allow an assessment of the risk factors for falls is the first step in the establishment of strategies for the prevention of this adverse event.¹⁰ Several validated scales for the assessment of falls risk exist in the scientific literature, one of them being the Morse scale, which was developed in 1985 by Janice Morse, Canada, to identify and predict the risk of falls in adults using six items of assessment. It is a widely used international scale because it is easy to develop.¹⁰

Given the importance of preventing falls in hospitalized patients and the challenge based on evidence-based data, overcoming cultural and infrastructure barriers to create an environment that promotes patient safety, the importance of the development of this study is characterized.

OBJECTIVE

- To analyze the adequacy between the evaluation of the risk of falls in adult patients and the prevention measures adopted.

METHOD

This is a descriptive, cross-sectional study with a quantitative approach at a public university hospital in the Northern region of the State of Paraná, PR, Brazil. It is a tertiary education institution, with 313 beds exclusively intended to assist patients of the Unified Health System-SUS.

The study sample consisted of 1,408 patients, aged more or equal to 18 years old, admitted to medical and surgical units, Emergency Room (ER) and Intensive Care Unit (ICU).

The data are part of an information database of the nursing audit service of the hospital under study and refer to the period from April 2012 to June 2013. The collection was performed through an operational audit to evaluate 15 quality indicators with the “Risk of Fall” indicator that is determined by the application of the Morse scale.¹¹

The Morse Scale determines the risk of falls by evaluating six criteria: a history of falls in the last three months, secondary diagnoses, mobilization assistance, connectivity in venous infusion devices, gait, and mental status. The scale score varies from zero to > 45 points, with 0 to 24 points corresponding to a low risk of falling, 25 to 44 points means moderate risk and ≥45 points have a high risk of falling.¹²

It should be pointed out that, among the preventive measures of fall, this study is limited to evaluate the lateral protection grid of the bed, which must be continually elevated in patients with a Morse score equal or greater than 45 and the continuous presence of one caregiver with the patient who has a high-risk score for fall.^{11,12}

The data were tabulated in the program Microsoft Office Excel 2010, and for statistical analysis the program SPSS version 2.1 was used. Descriptive analyses and chi-square test were performed, considering a p-value <0.05.

Regarding ethical precepts, this research was authorized by the institution’s management, in compliance with Resolution 466/12, which refers to studies involving human beings, and it was approved by the Research Ethics Committee of the State University of Londrina, CAAE 0224.0.268.000-11.

RESULTS

In this study, there were 1,408 patients evaluated for the risk of falls, of which 63.3% were hospitalized in the medical-surgical units, 26.8% in the ER and 9.9% in the ICUs. The high risk of falling score was more prevalent in the medical-surgical units (21.6%).

Table 1 shows the characteristics of the sample regarding the gender and age of the patients classified with a Morse score greater than 45 - high risk for fall.

Table 1. Association of the variable gender and age with the Morse Score for high risk of falls in adult patients of a Public University Hospital, Londrina- PR, 2014.

Variable	Total	%	High risk		P<0	RP	CI
			Total	%			
Gender							
Female	686	48.7	134	19.5	0.94	1	-
Male	722	51.3	160	22.2	-	0.99	0.87 - 1.13
Age							
Younger than 60 years old	930	66.1	169	18.2	0.00	1	-
Older than 60 years old	478	33.9	125	26.2		1.31	1.15 - 1.50

As for gender, 51.3% of the study participants are men, with 22.2% at high risk for falls.

Also, 33.9% of the patients were over 60 years old and had 26.2% higher prevalence of high risk for falls when compared to younger patients (CI:1.15-1.50). Also, 64.8% of patients classified as being at high risk for falls and over 60 years old are males.

Regarding the evaluation criteria used by the Morse Scale, the most prevalent items in the individuals classified as high risk for falls were: connection to the venous infusion

equipment (90.1%); history of previous falls (59.9%) and disoriented mental state (34.0%).

It should be noted that 31.3% of patients with some associated underlying disease, 38.8% presented a high risk for falls.

Regarding the percentage of the adequacy of the prevention measures adopted, 91.0% of the patients with the Morse Scale score for high-risk falls had the necessary measures adopted, as observed in Table 2.

Table 2. Prevalence of conformity among prevention measures in patients classified as high risk for falls in a Public University Hospital, Londrina- PR, 2014.

Conformity of prevention measures	Gender					
	Male		Female		Total	
	n	%	n	%	N	%
Adequate	150	56.0	118	44.0	268	91.0
Inadequate	10	39.0	16	61.0	26	9.0
Total	193	65.6	99	33.7	294	20.9

In Table 2, when comparing the prevention measures to gender, it is possible to observe that 61.1% of the female patients had inadequate prevention measures.

DISCUSSION

Most of the evaluated patients were in medical and surgical hospitalization units (63.3%) since they represent most of the beds of the studied institution. Of these patients, 21.6% were classified as high risk for fall, corroborating with the findings of another study carried out in the South of Brazil, where 58% of the 53 recorded falls occurred in clinical hospitalization units.⁶

Similar data were also identified in a study carried out in the state of São Paulo, in a public hospital, in which 321 falls of hospitalized patients were recorded. Of them, 58.9% occurred in clinical hospitalization units and 19.2% in surgical hospitalization units.¹³ These results suggest that the high risk of falls in surgical hospitalization units may be related to the change in the Brazilian age pyramid associated with the prevalence of chronic diseases since the profile of patients hospitalized in these places is for the elderly who depend on a range of medicines and have reduced mobility.¹³

Regarding the age group, the findings of this study reiterate the results of other studies,^{2,6,13-4} that demonstrate that patients over 60 years old are at higher risk of falls. This fact may be related to the intrinsic factors, such as the reduction of functional capacity,¹ associated with extrinsic factors, related to the inadequacy of the environment, which increase the risk for falls, such as inadequate furniture, slippery floors, high beds, etc.^{1- 3,6}

It is emphasized that the adaptation to the hospital environment for many elderly people becomes difficult because mental and cognitive decline damages them in recognition of the environment and can result in mental confusion and agitation, which are associated with greater risk of falls.⁴

A study carried out in a Portuguese university hospital showed that most of the falls occurred in patients who were confused and agitated,² which was also evidenced in this study, since most patients at high risk for falls had a disoriented state of mind (34.0%).

As in other studies,⁶ the gender variable cannot be statistically associated with a higher risk of falls. However, in this study, high risk was more prevalent among men (51.3%). In a survey carried out in a hospital in Lisbon-Portugal, 214 episodes of falls were identified, 63% of which occurred in men. It was also evidenced that they suffered three times more recurrent falls than women.¹⁵ The fact that men presented greater fall incidence can be explained by the cultural factor of non-acceptance of assistance in certain necessities of daily life, such as getting up from bed⁶ or walking.

Another related fact to the greater risk for fall was the use of venous devices (90.1%) and the presence of associated clinical comorbidities (31.3%). Similar results were found in a study carried out with adult patients of clinical and surgical units of a university hospital in the South of Brazil, in which the use of venous devices was emphasized in 54.3% and associated pathologies in 53.8% of the patients with a high risk of falling.¹⁶

In another study conducted in Cuiabá/MT, 53.1% of the falls were in individuals who presented some comorbidity, especially hypertension. Chronic diseases may involve osteoarticular and sensitivity complications, requiring the use of one or more drugs.²² The use of medications, whether or not related to comorbidities, is responsible for the increased risk of falls, especially when there is an association of four or more drugs and/or use of psychoactive drugs.¹⁵

Also, a high prevalence of patients with a previous history of falls was identified (59.9%). In a study carried out in São Paulo, SP, most patients of the 321 falls presented only one episode of this adverse event. However, it was pointed out that 10% suffered two falls and in 1.8% the patients suffered three falls in the same hospitalization period, especially in the first days of hospitalization.¹³

The presence of more than one fall may be related to anxiety about the new condition the patient is, as well as the use of new medications and non-adaptation to the hospital environment.¹³ It can also lead to depression, insecurity, and fear of a new fall.⁹

Regarding the prevention of fall, 9.0% of the patients evaluated at high risk for this adverse event were not adequately safe,

among them, the majority were women. This finding suggests that the active search strategy for falls, adopted by the institution under study, is effective for the control of this event, as it detects the risk before the occurrence of the incident, alerting the nurses of the assistance units to the need of measure implementation. However, it is important to emphasize that, even for patients classified as low and medium risk of falls, standard precautionary measures should be adopted by adapting the space as a way to guarantee a safe care environment.⁹

In daily practice, it is observed that health teams are usually focused on the clinical and therapeutic conditions of patients, forgetting the environmental conditions as decisive factors for safety, especially regarding the prevention of falls in the hospital environment, event with potential for recovery of their patients.¹⁷

There is DRC 50 of February 21, 2002 to reinforce the importance of the environment for patient safety,, which approves the Technical Regulation for planning, programming, elaborating, evaluating and approving physical projects of care institutions of health¹⁸, and the Brazilian Regulatory Standard - NBR 9050/2004 of the Brazilian Association of Technical Standards, which draws attention to accessibility in buildings, furniture, spaces and urban equipment.¹⁹

A study performed in a large hospital in the city of Curitiba-PR evaluated 127 beds of hospitalization units and identified inadequacy about environmental safety standards in 77.7%. These non-conformities were related to the non-coating of the floors with non-slip material, elevators are not signaled as "Risk of Falls, " and the path traveled by the patient was not free of obstacles, and 66.6% of the sanitary facilities did not meet technical standards.²⁰

Regarding the devices that reduce the risk of falls, about the side protection grids of the litter/bed, a publication analyzed 80 episodes of falls and found that 55% of the falls from the bed occurred due to the non-elevation of the lateral grid of the bed.¹⁴ However, it is important the presence of a caregiver with the patient when maintaining the side rails elevated, especially for elderly patients to ensure that this elderly person does not want to leave the bed alone, passing over the protection grids.²⁰

In this sense, the elevation of the lateral bed rails can result in a decrease in the number of falls, besides the importance of adopting complementary measures related to the extinction of the environmental risks, such

as excessive conversations or noise, illumination not adequate, beds in low position, at a suitable height, between 100% and 120% of the patient's lower leg length.² However, the adoption of preventive measures will not work without the awareness and training of professionals and the construction of systematic and monitorable prevention protocols.³

The hospital scenario of this research initiated the movement for the implementation of the fall prevention protocol, as well as the other protocols related to patient safety, in 2011. However, to function effectively, it is essential that, in the event of this incident, there is notification⁴ to the bodies responsible for research and development of plans for the prevention of adverse events. Underreporting is still a reality in the institution under study, but awareness measures have been adopted to minimize this problem.

It is expected that the fear of reporting an adverse event will be replaced by the search for and analysis of the facts that contributed to such injury since errors should not be based on people but process failures.²¹

CONCLUSION

From the results of this study, it was concluded that the active search for patients at risk for falls is an effective strategy for the prevention of this adverse event. In this sense, the importance of the adoption of health institutions of quality indicators in the pursuit of care security, to providing a better understanding of the processes, detection of fragilities and directing corrective measures necessary for the promotion of safe care. Also, it is imperative that health professionals be sensitized and trained to prevent adverse events, especially falls, which can result in irreversible damages to patients, families, and society.

As a limitation of this study, there is the fact of not analyzing the fall events occurred in the institution, which is justified by their underreporting.

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