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FALLS IN SURGICAL PATIENTS: SUBSIDIES FOR SAFE NURSING CARE

QUEDAS EM PACIENTES CIRÚRGICOS: SUBSÍDIOS PARA O CUIDADO DE ENFERMAGEM SEGURO

QUEDAS EN PACIENTES QUIRÚRGICOS: SUBSIDIOS PARA EL CUIDADO DE ENFERMERIA SEGURO

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ABSTRACT

Objective: *to* describe the adverse fall event in patients hospitalized in surgical units. ***Method***: retrospective study with quantitative approach performed in a Brazilian university hospital, with a sample of 70 records of falls collected in medical records, and analyzed by descriptive statistics, presented in tables and discussed with the literature. ***Results***: the majority of the patients were male (61.4%), with an average age of 65.5 ± 13.1 years, 2.17 comorbidities each and an average internment of 25 days. The predominant surgeries were abdominal (28.6%) and urological (15.7%). The falls occurred mainly in the room (61.4%) and equivalent to the same height (47.1%). The identified risk factors were the use of antihypertensives and sedatives, to be unaccompanied and limited to wander. There was no harm in 55.7% of the cases and 38.6% showed mild harm. ***Conclusion***: the fall is a multicausal event and the nurse must be aware to intervene and prevent its risk factors. ***Descriptors:*** Nursing; Accidental falls; Surgery.

RESUMO

Objetivo: descrever o evento adverso queda em pacientes internados em unidades cirúrgicas. ***Método***: estudo retrospectivo, com abordagem quantitativa, realizado em hospital universitário brasileiro, com amostra de 70 registros de quedas coletados em prontuário, analisados pela estatística descritiva, apresentados em tabelas e discutidos com a literatura. ***Resultados***: a maioria dos pacientes era do sexo masculino (61,4%), com idade média de 65,5 ± 13,1 anos, 2,17 comorbidades cada e uma média de internação de 25 dias. As cirurgias predominantes foram abdominais (28,6%) e urológicas (15,7%). As quedas ocorreram, principalmente, no quarto (61,4%) e da própria altura (47,1%). Os fatores de risco identificados foram o uso de anti-hipertensivos e sedativos, estar desacompanhado e com limitação para deambular. Não houve dano em 55,7% dos casos e 38,6% apresentaram dano leve. ***Conclusão***: a queda é um evento multicausal e o enfermeiro deve estar atento aos seus fatores de risco para intervir e prevenir o mesmo. ***Descritores*:** Enfermagem; Acidentes por Quedas; Cirurgia.

RESUMEN

Objetivo: describir el evento adverso caída en pacientes internados en unidades quirúrgicas. ***Método:*** estudio retrospectivo, con abordaje cuantitativo, realizado en hospital universitario brasileño, con muestra de 70 registros de caídas, recogidos en prontuario, analizados por la estadística descriptiva, presentados en tablas y discutidos con la literatura. ***Resultados:*** la mayoría de los pacientes eran del sexo masculino (61,4%), con edad promedio de 65,5 ± 13,1 años, 2,17 comorbidades cada una y una media de internación de 25 días. Las cirugías predominantes fueron abdominales (28,6%) y urológicas (15,7%). Las caídas ocurrieron, principalmente, en el cuarto (61,4%) y de la propia altura (47,1%). Los factores de riesgo identificados fueron el uso de antihipertensivos y sedantes, estar desacompañado y con limitación para deambular. No hubo daño en el 55,7% de los casos y el 38,6% presentaron daño leve. ***Conclusión:*** la caída es un evento multicausal y el enfermero debe estar atento a sus factores de riesgo, para intervenir y prevenir el mismo. ***Descriptores*:** Enfermeria; Accidentes por Caídas; Cirugía.

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INTRODUCTION

Falling can be defined as inadvertently staying on the ground or at a lower level, excluding intentional position changes to lean on furniture, walls or other objects.[1] It accounts for about 70% of adverse events in the hospital environment, with rates ranging from 1.4 to 10.7 falls per 1000 patients/day.[2-4] In surgical units, it is the second most prevalent adverse event.[5]

The postoperative condition is characterized as a risk factor for the fall due to the difficulty of locomotion and movement, use of sedative and analgesic medication, need of devices to aid walking, presence of catheters and drains, besides predisposing the occurrence of orthostatic hypotension due to changes in blood volume during or after surgery.[6-8]

The presence of pre-existing diseases in the patient and the use of medications, especially polypharmacy, i.e., the use of more than four drugs are also factors that increase the patient's risk for falls.[6-7,9]

Damage is the main problem related to the fall event, occurring from 30% to 50% of cases and ranging from mild to severe injuries, such as femoral, hip and skull fractures. These diseases can increase hospitalization time, raising health care costs, cause disrepute with the care provided by the nursing team and generate ethical and legal implications for institutions.[3-4,10]

The occurrence of falls and injuries in the hospital environment is a worldwide concern so that initiatives and practices focused on patient safety have been developed in order to reduce these events. The sixth international safety goal of the *Joint Commission International:* "Reduce the risk of patient harm resulting from falls" and the Fall Prevention Protocol of the National Patient Safety Program are examples of these initiatives that seek to reduce the incidence of falls and the resulting harm through the dissemination of preventive measures.[11-2]

Recent literature reviews highlighted the importance of understanding this event in order to subsidize the qualification and safety of nursing care to patients. However, a small number of nursing investigations were also identified on the fall event in surgical patients, its characteristics and triggers, considering the specificities of this clinical situation.[13-4]

Thus, in view of the need to explore the knowledge on falls in hospitalized surgical patients in order to subsidize nurses for the increment of preventive actions to them, this study was developed guided by the following research question: "What are the fall characteristics in postoperative patients?"

The aim of the study was to describe the adverse fall event in patients hospitalized in surgical units of a university hospital.

METHOD

A descriptive, retrospective, quantitative study conducted in a large university hospital in the south of Brazil, which has a prevention and management plan for falls. In this institution, these events are recorded and notified by the nurse in the patient's electronic medical record, filling in data regarding the location and type of fall, triggering factors, patient's conditions before the fall and harm severity.

The sample included all records of patients submitted to a surgical procedure with falls reported in the year 2013, which represented 70 records of falls referring to 69 different patients. Patients hospitalized for late surgical complications and other clinical conditions were excluded.

Data collection was performed based on information contained in the reports of falls and patient's electronic medical records from January to March, 2014. The data were organized into Excel spreadsheets for Windows and descriptive statistical analysis was performed with the *Statistical Package for the Social Sciences (SPSS),* version 18.0.

The research project was approved by the Ethics and Health Research Committee of the hospital under the number 100496.

RESULTS

We analyzed 70 records of falls referring to 69 patients hospitalized in seven different surgical units, since one of them showed two falls in two different hospitalizations.

Table 1 presents the patient's characteristics that compose the study sample.

Table 1. Characteristics of surgical patients who suffered falls (N=70). Porto Alegre, RS, Brazil, 2014.

Characteristics	n	(%)
Age (Years)*	65.5 ± 13.1	
Sex (Male)	43	61.4
Hospitalization time (days)t	25 (10-34.25)	
Presence of comorbidities	68	97.1
SHT	30	42.8
Neoplasms	30	42.8
DM	21	30.0
Circulatory	15	21.4
Genitourinary	8	11.4
Nervous system	7	10.0
Digestive System	6	8.5
Transplants	6	8.5

*average±standard deviation; tmedian (25% and 75% percentiles)
SHT = Systemic hypertension; DM = Diabetes mellitus

The average age was 65.5 years, male predominance, average length of stay of 25 days and average of 2.17 comorbidities/patient, being systemic hypertension (SHT), neoplasia and diabetes mellitus (DM) the most prevalent.

The following table shows the types of surgeries performed by the patients that compose the study sample and the respective presence of catheters and/or drains.

Table 2. Types of surgery performed by patients who suffered a fall and the presence of catheters/drains (N=70). Porto Alegre, RS, Brazil, 2014.

Variables	n	(%)
Surgeries		
Abdominal	20	28.6
Urological	11	15.7
Orthopedic	8	11.4
Neurological	7	10.0
Cardiac	6	8.6
Eye	4	5.7
Other	14	20.0
Catheters/Drains*	22	31.4
VDP	6	8.5
CVC	6	8.5
PortoVac drain	5	7.1
Penrose drain	4	5.7
Enteral tube	2	2.8
Other	5	7.1

***Some patients showed more than one type of drain/catheter at the time of fall.**
VDP = vesical delay probe; CVC = Central venous catheter

Regarding the types of surgeries, the abdominal (28.6%), urological (15.7%) and orthopedic (11.4%) were identified as the most frequent. Different types of catheters and / or drains were observed in 22 patients (31.4%), with the vesical delay probe (VDP) and central venous catheter (CVC) being the most prevalent (Table 2).

Table 3 presents the location, type, characterization and cause of the analyzed fall events.

Table 3. Location, type, characterization and cause of falls (N=70). Porto Alegre, RS, Brazil, 2014.

Variables	n	(%)
Location of fall		
In the bedroom	43	61.4
In the bathroom	23	32.9
In the corridor	3	4.3
Other	1	1.4
Type of fall		
From the same height	33	47.1
From the bed	16	22.9
From the chair	14	20.0
From the stretcher	2	1.4
Other	5	7.1
Cause		
Slip	19	27.1
Decreased strength	14	20.0
Dizziness	13	18.6
Confusion	6	8.6
Stumble	4	5.7
Fainting	3	4.3
Not applicable	1	1.4
Other	10	14.2
Environmental factors		
No environment-related interference	35	50.0
Wet/slippery floor	10	14.3
Equipment Failure	9	12.9
No rails	8	11.3
Poor lighting	5	7.1
Presence of barriers	3	4.3
Factor from the work process		
Unaccompanied	39	55.7

Most of the falls occurred in the patients' room (61.4%), from the same height (47.1%), with a decreased strength (20%) and with unaccompanied patients (55.7%).

Table 4 shows the main risk factors found in the records that composed the sample.

Table 4. Main risk factors for falls (N=70). Porto Alegre, RS, Brazil, 2014.

Risk factors	n	(%)
Use of antihypertensives	41	58.5
Use of sedatives	37	52.8
Limitation to wander	33	47.1
Use of opioids	32	45.7
Dizziness	21	30.0
Use of diuretics	17	24.2
EV infusion	14	20.0
Bedridden	13	18.5
Urinary urgency	11	15.7

EV=Endovenous

The most frequent (intrinsic) risk factors were: use of antihypertensives (58.5%), use of sedatives (52.8%), and limitation to wander (47.1%).

Most of the falls did not cause injury to the patient (55%), however, there was minor injury (abrasion, bruising, minor harm) in 38.6% of the cases. Severe injuries and deaths were not evidenced in the studied events.

DISCUSSION

The average age of the patients who suffered falls was higher than 65 years, which is corroborated by the literature describing the elderly as susceptible to this event due to physiological changes resulting from the aging process, such as postural instability, gait changes, and reduced functional and cognitive capacity.[15]

Falls are the main cause of morbidity and disability in the elderly, with a third of them showing a previous history of them, which significantly increases the risk of a new event.[6] The unfamiliar hospital environment and the postoperative conditions can also reinforce the possibility of this event.[8]

The male sex showed a higher prevalence, similarly to other investigations.[10,16] It is inferred that the found index (61.4%) may be related to the cultural reality in which the patients are inserted, since the men request less help to perform daily activities. However, previous research does not establish sex as a risk factor for falls.[10,14,16]

The average length of stay for patients who suffered falls was 25 days, which is high when compared to the literature that presents an average length of stay of 7 days,[6] however, it is necessary to consider that the patients' stay in the studied units may have been influenced by several factors, such as medical decisions regarding the investigation of health problems, number of comorbidities and postoperative complications. Moreover, the characteristic of the surgical patients in this study who were predominantly elderly and with several comorbidities, which implies the need for a multiprofessional approach and conducting examinations, which may increase the length of stay without necessarily being related to the proper surgical procedure.[17] On the other hand, falling may also be a factor for the increase in length of stay due to the need to observe, evaluate and treat the possible consequences of the event.[10]

The percentage of patients with comorbidities was 97.1%, with 2.17 being the average per individual. Another study performed at the same institution, which analyzed 174 patients with a nursing diagnose Risk of falls, found an average of three comorbidities per patient, corroborating the found data,[18] demonstrating the complexity of the patients attended at the institution, which is a reference in the attendance of several specialties.

The most prevalent comorbidities among patients who fell were SHT, neoplasia and DM, diseases frequently found in elderly people. A Brazilian study that analyzed elderly patients of both sexes verified a high incidence of SHT and DM, approximately 50% and 18%, respectively.[19]

It is worth noting that surgical procedures are conducted in all fields of specialization in the field study institution, however, the most frequent types in this study were abdominal, urological and orthopedic surgeries. The use of catheters and drains has an intimate relationship with the accomplishment of these surgeries. Urologists commonly use urinary catheters, mainly the vesical delay probe.[20] From the total number of performed surgeries, 11 were urological and seven patients used some type of catheter or ureteral drain at the time of the fall. In turn, abdominal and orthopedic surgeries also often require the use of other drains and catheters, as demonstrated by a study conducted in a Brazilian hospital, which pointed out that among 81 patients undergoing abdominal surgeries, 42% used some type of drain after surgery.[21]

The presence of catheters and drains in surgical patients, especially those who use collector bags, can hamper their mobility, not only because they have to be carried during locomotion, but also because of the consequent movement restriction. Allied to this, the insecurity, fear of pain, of displacing the drain or even the discomfort caused to the patient in their mobilization, are circumstances that can lead to an increased risk of fall.

Therefore, to assist the patient in securing catheters and/or drainage devices by wandering, sitting and standing up as appropriate, and to assess the level of dependence and autonomy in order to plan care after installation of equipment are care nurses in the prevention of falls for these patients.[12,22]

It is known that the predictive instruments point to the relationship of falls with the use of intravenous devices and with the gait change or transfer as risk factors.[23-4] By similarity, it is inferred that the use of other devices as drains and catheters in postoperative patients also constitute risk factors for the fall. Recent observational and prospective research has shown that the chances of falls increased in patients who needed mobility assistance, a common factor in postoperative patients.[24]

Still on the risk prediction instruments, it is recommended that the reassessment of patients to the risk of fall should be performed whenever there is a change in their clinical picture,[12] as in the postoperative period, requiring the nurse to pay special attention to identify these risks, plan and implement prevention measures.

The characterization of the falls indicated that the room was the place where the patients most fell (61.4%), probably because it is the place of greater permanence of the individuals during the hospitalization. Similarly, a study with 2512 patients in a Swiss public hospital showed that 75.7% of falls occurred in the bedroom, being 78.6% only in surgical units.[25] Corroborating these findings, a study that analyzed 439 falls in a U.S. school hospital revealed that 67% of events also occurred in the patient's room.[16]

Regarding the type of fall, it was found that the same height was the most frequent (47.1%), followed by falls from the bed (22.9%), with casuistry related to slip and decreased strength. In another study, falls during walking were also the most prevalent (42.5%), followed by falls from the bed and/or chair (20.2%),[25] whereas in another study the prevalence of the event reached 29.4% at the

moment the patient was walking and 22.5% at the moment when the patient was getting out of bed.[16] These results point to the need for a close observation of the patient when he or she is released to wander, with the guidance that he or she does not do it alone because his or her safety is directly related to nursing supervision.[18] The implementation of monitoring care actions regarding the alterations of the patient's physical or cognitive functioning promote the maintenance of their comfort and their safety.[12,22]

The nursing team should also consider the possibility of postural hypotension by helping the surgical patient to leave the bed, a common postoperative condition due to hemodynamic changes, which may lead to a fall.[26] The measures that help preventing this condition include guiding the patient to get up gradually, initially with a headrest elevation at 30º, and then sitting on the bed with his or her feet flat on the floor for 5 min before getting out of bed.[12]

The fall is a multifactorial event related to intrinsic and extrinsic risk factors to the patient. Among the intrinsic factors were the use of medications such as: antihypertensives, sedatives and opioids, followed by the fact that the patients were unaccompanied at the event and with limitation to ambulation. This data refers again to the issue of patient supervision, which should be directed to request help for his or her mobilization, as well as be accompanied by a relative whenever possible, especially when he or her presents alteration of cognitive or consciousness level.

After surgical procedures, pain is a frequent symptom, depending on several factors such as type and location of the procedure, extent of trauma and personal experiences. The treatment of pain is performed with the use of analgesics, especially opioids, which have potential for central nervous system depression and may therefore be related to an increased risk of falls.[14]

It was also found that 58.6% of patients who fell used some type of antihypertensive, since it is in agreement with results of studies that described polypharmacy and the use of antihypertensive drugs as risk factors for fall.[6,14,25] This class of medication is related to the risk of fall due to the possibility of causing adverse reactions, such as orthostatic hypotension, dizziness, fatigue and loss of strength, making the patient more susceptible to the event.[6,9] Thus, it is fundamental that the nurse guides the patient and family about the medications in use, their side effects and drug interactions, stimulating communication to the team whenever symptoms such as dizziness, dizziness, drowsiness, excessive sweating, malaise and visual changes, conditions that increase the risk of falls.[12]

In the present study, environmental and work process factors (extrinsic) were identified in 50% and 55.7% of the cases, respectively. Among the environmental factors, the wet/slippery floor was verified in ten events (14.3%) and the non-assisted falls as a risk factor of the work process in 39 (55.7%) cases.

Environmental factors in hospital stay conditions, such as bed height, inadequate bed side rails, lack of support equipment, slippery, irregular floors and poor lighting are related to the occurrence of falls, as well as issues related to the work process, such as high work demand, number of professionals per patient, and unassisted falls (unaccompanied patient at the time of the outcome).[14] Nursing care related to environment safety were the most frequently prescribed by nurses for patients with a nursing diagnosis (ND) Risk of falls in a Brazilian university hospital.[18]

According to *Nursing Interventions Classifications* (NIC), the intervention Environment Control: Safety, including care using protective devices (elevated rails), modifying the environment to minimize hazards and risks, identifying patient safety needs based on the level of physical and cognitive capacity, is one of the priority interventions for patients with risk of falls.[22]

Thus, the nursing team needs to be attentive not only to the clinical characteristics of the patient related to falls, but also to the safety of the environment, identifying the situations of risk and intervening to modify them whenever possible.

It is also worth noting that the fall characteristics can vary among the different studies due to the particularities of the institution and the studied patient population. Environmental issues and institutional structure, such as the presence of beds with rails/side protection, electric beds that allow leveling its height, support bars in the bathroom and the periodic supervision of the conditions of the physical area vary among the hospitals, influencing in the greater prevalence of a certain type of fall and the causal factor thereof.[14,27]

Regarding the presence of harms, it was verified that most of the falls did not cause

injuries to the patients (57.1%), and there was slight harm in 38.6% of the cases, requiring some kind of care. Similarly, a previous study performed at the same institution showed that 43.4% of the falls did not result in harm to the patient and 41.51% of the cases resulted in mild harm.[10] In a Swiss hospital, 64.8% of the falls did not result in harm and 30.1% of the cases resulted in slight harm.[25] Although the data of the present study corroborate with the literature, evidencing a majority of events without lesions, it is necessary to invest in preventive measures in order to reduce the percentage of falls with harm. The international goal of the Joint Commission International (JCI) reinforces this issue, focusing on "reduce the risk of patient harm" resulting from falls.

In this context, and considering the specificities of the surgical patient, nurse must plan actions in order to prevent falls and consequent injuries. For this purpose, several strategies can be used, such as risk predictive scales, prevention and treatment protocols, and nursing classification systems, which can subsidize evaluation, implementation of interventions and results, besides management of falls by hospital institutions.[23,26,28]

CONCLUSION

The analysis of the adverse fall event in surgical units showed that the patients with the highest propensity to fall were elderly, male and with multiple comorbidities, being the most prevalent hypertension, neoplasia and DM.

Abdominal were the most frequent types of surgeries, followed by the urological and orthopedic surgeries, being the use of catheters and drains identified in a third of the studied population.

The falls from the same height, in the bedroom and bathroom were the most prevalent, evidencing that displacements inside the unit and transfer from bed to chair represent moments favorable for the fall.

The most common risk factors were the use of medications, such as antihypertensives, sedatives and opioids, as well as the limitation to ambulation and the fact that the patient was unaccompanied at the time of the fall.

The harm caused by the fall was not frequent in the studied events, but it still occurs and measures are necessary to avoid falls and hence harms resulting from them.

In view of the evidence described in the literature and corroborated in this study, the fall is an event of multicausal origin, being indispensable the nurse's evaluation at the time of admission of the surgical patient, the risk identification and the establishment of preventive interventions throughout his or her period of hospitalization.

It is believed that the use of scientifically based care protocols and nursing classification systems can also support preventive interventions in order to avoid falls and their consequences in these patients in the hospital environment.

Thus, it is expected that this study contribute to highlight a frequent adverse event in nursing practice under different care settings in order to promote the necessary prevention measures.

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