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FALLS IN HOSPITALIZED ADULTS: INCIDENCE AND CHARACTERISTICS OF THESE EVENTS

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ABSTRACT
The fall is considered a public health problem and one of the main events to be prevented in health institutions. This study aimed at identifying the incidence, the characteristics of the falls of adult patients hospitalized in clinical and surgical internment units (IUs) and in attendance in emergency services (ES), as well as the epidemiologic profile of these patients and the risk factors. This is a retrospective study of the fall cases of patients hospitalized in the period from January 1st, 2011, to June 30th, 2012. The data analysis was conducted by means of descriptive statistics. 185 events, of these 93 (5%) occurred in IUs, were analyzed. The incidence was 1,7 per 1.000 patients-daily in IUs and 2,6 per 1.000 admissions in ES. Most of them occurred at night (50,6%), in the patient's room (65,4%) and from their own heights (52,4%). Of the patients who fell, 90,8% had pre-determined risk for falls, with the age (≥ 65) as the main risk factor. From the resulting injuries, 82,6% showed mild damage and 14 of these cases influenced in the increased length of hospital stay. The findings have contributed to a better understanding of falls in hospital environment, thereby helping in the planning and promotion of preventive actions to hospitalized patients.

Keywords: Patient safety. Accidental from falls. Hospital care.

INTRODUCTION

The search for continuous improvement of health care quality and patient safety in health services has received special attention in global scope, which enhances interest in the academic environment and a necessity for survival in hospital institutions[1-2]. According to the World Health Organization (WHO), for every 10 people who need care, at least one will suffer from adverse events (AE) during its medical and hospital care, of those, an index between 40 and 50% might be considered preventable[1].

AE is understood by the occurrence of an unintentional injury, which resulted in temporary or permanent disability and/or prolonged hospital stay or death, as a consequence of provided care shares[3]. Among the main adverse events to be prevented in health institutions, one can highlight the event of fall, which is defined as the unintentional displacement of the body to a lower level in relation to the original position, with inability to correct it in a timely manner, provoked by multifactorial conditions that compromise stability[4].

Fall is considered a public health problem throughout the world. In the hospital environment, it is responsible for two out of five adverse events related to patient care, with rates ranging from 1,4 to 13,0 falls for every one thousand patient-daily[5-6]. Hospitalized patients have an increased risk of falls due to the

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presence of acute diseases, treatments, comorbidities and the unfamiliar environment [7].

Accidental falls can cause numerous consequences to the patient, both from physical (injuries and disabilities) and from psychological nature[8]. Such events can also generate dissatisfaction and skepticism in relation to the quality of nursing care, in addition to negatively affect the current health management, thereby increasing the length of stay, the cost of treatment and the ethical and legal implications for the institution[6].

Due to the importance of this issue for patient safety and quality of care, The Joint Commission, main accrediting agency on health in the United States and its international branch, the Joint Commission International, in partnership with the WHO, launched the International Safety Goals, which have put the reduction of the risk of damages from falls among them[9]. Given the above, the hospital institutions that are in search of accreditation in health have been developing strategies to achieve these goals with a view to guarantying a safer care for patients[5].

Falls have been studied around the world within the hospital environment. In Brazil, the studies on the occurrence of adverse events are still restricted and the publications on the incidence of falls are limited[3,10-13].

By considering the importance of patient safety in health institutions and the fact that falls are common adverse events within the hospital environment[3,10,13], it becomes important to deepen the knowledge of this issue through studies that assess the actual impact of these intercurrences and their characteristics, which might contribute to the planning of preventive interventions.

Thus, this study aimed at identifying the incidence, the characteristics of the falls of adult patients hospitalized in clinical and surgical internment units (IUs) and in attendance in emergency services (ES), as well as their epidemiological profile and the existing risk factors.

METHODOLOGY

This is an incidence retrospective study, conducted in a general, private and charitable hospital of high complexity, located in the Brazilian South, with 296 admission beds, where an average of 1.800 surgeries and 2.200 visits in ES are performed monthly. Moreover, 1.100 patients are admitted per month.

The hospital has the Department of Epidemiology and Risk Management (DERM) whose major responsibility is the deployment and dissemination of the Institutional Safety Policy. Among the implemented actions with assistential focus, it is worth highlighting the creation of the Falls Prevention Group (FPG) in 2009, which instituted a protocol through which all hospitalized patients are assessed and identified on the evidence of the risk of falling. Since then, this group started to monitor the incidence of falls in the institution, investigate each occurrence of these events by means of a standard instrument and qualify professionals with regard to preventive measures.

The study population consisted of patients older than 18 years, admitted to the medical and surgical IUs and in ES in the period from January 1st, 2011, to June 30th, 2012. The inclusion criteria were: adults hospitalized in the clinical and surgical IUs and Es who suffered falls within the institution and had their occurrences notified to the DERM. Each patient who fallen down represented a case (fall), and the collected information were related to only a fall.

The data were retrospectively collected from information obtained in the research instrument to investigate falls prepared by the FPG and in electronic records of the TASY computerized system – Health Management System.

The surveyed variables associated with the fall event were: hours / shift, location and type. The variables related to the patient were: gender, age, risk factors for falls and the presence of injury.

The schedule of occurrence of falls was analyzed according to the shift, by considering the period from 07:01 A.M. to 01:00 P.M. as morning, the period from 1:01 P.M. to 7:00 P.M. as afternoon and the period from 7:01 P.M. to 07:00 A.M as night.

The classification adopted for the types of injuries were: mild (contusion, abrasion,

laceration or small skin damages involving little or no care), moderate (distension, large or deep laceration and greater skin injury, which requires intervention) and severe (fracture, loss of consciousness and altered mental status, which requires greater intervention).

The descriptive statistical analysis was conducted with the assistance of the Statistical Package for the Social Sciences (SPSS), version 12.0.

The incidence of falls in IUs was calculated from the formula: nº of falls/nº of patient-daily*1.000. In relation to ES, it was: nº of falls/nº of hospitalized patients*1.000 (those with necessity for observation and who remained in the sector for more than 6 hours were considered as admitted patients to the ES). The research was approved by the Research Ethics Committee of the institution under study (Opinion nº 010/2012).

RESULTS AND DISCUSSION

In the period from January 2011 to June 2012, 185 patients' falls, with 173 (93,5%) in IUs and 12 (6,5%) in SE, were reported and included in the study. The incidence of falls in IUs was 1,7 for every 1.000 patients-daily. As for SE, it was 2,6 for every 1.000 admissions.

The incidence of falls is considered a sensitive indicator of quality of care and one of the most important indicators of patient safety for being representative of assistential processes and of suitability to physical structures and resources necessary for the prevention of adverse events.

The index of falls identified in the surveyed institution corroborates the literature data, since this indicates an incidence from 1,4 to 13,0 falls for every 1.000 patients-daily, ranging according to the profile and type of institution[5-6].

Allied with the critical monitoring and analysis of indicators, protocols are tools that contribute to the care systematization, thereby favoring the improvement of processes in the pursuit of excellence[5]. The Falls Prevention Protocol of the surveyed institution recommends the accomplishment of a review (own scale developed by the FGP), by assistential nurses, in order to identify the risk of falling in the first 24 hours of hospital admission. The assessed risk factors include: altered mental status (confusion , disorientation, difficulty in understanding or being bearer of psychiatric disorders), altered gait/impaired physical mobility (difficulty in walking, decreased motor coordination and physical mobility, altered balance, necessity for aid to walk or immediate postoperative), decreased visual acuity and /or prior history of falls, syncope or dizziness, concomitant use of three classes of medicinal drugs (anxiolytic, anticonvulsant, antidepressant, antipsychotic, antiparkinsonian, hypnotic, opioid, antihistamine, antihypertensive, diuretic and hypoglycemic) and age ≥ 65 years. In case of evidence of risks, one must perform the registration in the online medical record, indicate the risk to the patient through a wristband, advise the patient and its family member about preventive measures (keeping grids in bed and call nursing staff for aid), recommend the permanence of a family member/companion during 24 hours a day and noting the progress of the nursing shares in the record.

The patient assessment and the knowledge of the clinical and epidemiological characteristics that predispose the occurrence of falls are important as far as they allow the identification of risk and the implementation of measures to prevent the event.

Regarding the epidemiological profile, it was found that 50,3% of falls occurred in women and 36,2% of the surveyed patients were in the age group from 70 to 79 years (Table 1). The average age was 71 ± 12,6 years.

Advanced age is one the main risk factors for falls and injuries resulting from these events. Because of lower fertility rates and increasing longevity, the number of elderly subjects (people older than 60 years according to Brazilian legislation) has taken a sizable piece in the population distribution, and it is estimated that by the year 2020 the country will have, on average, 16% of its population in the old age [14]. The physiological changes of aging, such as impaired physical mobility, postural instability, decreased functional, cognitive and visual capacity and concurrent use of various classes of medicinal drugs are described as important

predictors of falls[6,15], which was also demonstrated in this study.

Table 1. Gender and age of patients who were victims of falls occurred in clinical and surgical IUs and ES from January 2011 to June 2012, Porto Alegre / RS, 2012.

	N	%
Gender		
Male	92	49,7
Female	93	50,3
Age group		
From 19 to 29 years	2	1,0
From 30 to 39 years	3	1,6
From 40 to 49 years	7	3,7
From 50 to 59 years	13	7,0
From 60 to 69 years	51	27,5
From 70 to 79 years	67	36,2
> or = 80 years	42	22,7
Total	185	100

Source: Original data from the Department of Epidemiology and Risk Management (DERM)

Most patients (90,8%) showed risk for falls, with age ≥ 65 years as the main factor (81,5%), followed by altered gait/impaired physical mobility (64,3%), use of medicinal drugs (36,9%), prior history of falls (20,2%), decreased visual acuity (6,0%) and immediate postoperative (5,4%).

The etiology of falls is considered multifactorial, by involving intrinsic risk factors (age, physiological changes, diseases, adverse medicines reactions) and extrinsic (environmental conditions) to the patient, whereas the risk increases correspondingly with the number of existing variables [3-4]. The history of falls, changes in gait, necessity for aid to walk, dizziness, Parkinson's disease and the use of antiepileptic medicines are strongly associated with the occurrence of falls[16].

With regard to gender, it was not found differences between males and females among the patients who experienced falls. There is no consensus about what genre is most associated with the risk of falling. In community-based studies, the female gender appears more often as a predictor of falls[17-18], while in hospital institutions no significant differences were found[3,6,11,19]. In general, the considerations about the falls in the male gender are more related to cultural issues (men request less assistance for performing their activities), while it is indicated a greater prevalence of osteoporosis, decreased muscle mass, hormonal changes and increased life expectancy in the female gender[3,11].

Studies indicate that patients admitted to clinical units have higher rates of falls when compared with surgical patients, because the first ones have a longer hospital stay, greater number of comorbidities, greater complexity and advanced age, which are characteristics that could be associated with an increased risk of falling[5,11,19]. In this study, the incidence of falls was not stratified by type of hospitalization.

Most falls occurred during the night shift (from 7:01 P.M. to 07:00 A.M). The most frequent types of fall were the ones from their own heights, with 97 (52,4%) cases and falls off the bed or stretcher, with 60 (32,4%) cases (Table 2).

Table 2. Types of fall and occurrence shifts in clinical and surgical IUs and ES from January 2011 to June 2012, Porto Alegre / RS, 2012.

Type of fall/Shift	Night		Morning		Afternoon		Total	
	N	%	N	%	N	%	N	%
Own height	46	24,8	32	17,2	19	10,2	97	52,4
Bed or stretcher	39	21,1	16	8,7	5	2,7	60	32,4
Chair or Armchair	6	3,3	11	5,9	1	0,5	18	9,7
Toilet bowl	3	1,6	4	2,2	3	1,6	10	5,4
Total	94	50,8	63	34	28	15	185	100

Source: Original data from the Department of Epidemiology and Risk Management (DERM)

The greater occurrence of falls on the night shift was also evidenced in other studies that have characterized the falls in hospitalized patients[3,5,11].

It is inferred, from clinical practice, that many patients do not request assistance from the nursing staff to perform activities such as go out

of bed and go to the bathroom, for overestimating their physical capabilities and/or for reason of constraint to not "bother" the professional, and it is a fact can be highlighted during the night shift. Another issue to be considered is that the nursing staff at night is usually smaller in comparison with other shifts, which might contribute to a lower supervision of patients or a less agility in meeting the bells, thereby leading to greater exposure to the risk of falling.

Thus, the presence of a family member or companion during the night shift could contribute to prevent falls. Despite the permanence of a family member or companion during 24 hours per day being a recommendation of the institutional protocol, it was observed that this stakeholder was present at the time of the fall in only 29,2% of cases.

With regard to type of fall, it was found that the ones from the own height were the most frequent, which is an outcome similar to the finds of studies conducted in hospital environment[5,13]. Other studies have indicated the falls from bed as the most prevalent ones[3,10,12].

The type of fall is a complex issue to be analyzed and compared, since it is dependent on the characteristics of the institution and the surveyed population. The safety of the environment, including the presence of beds with grids, grab bars in the bathroom and periodic monitoring of the conditions of the physical area of the units, might be different according to the type of institution, which will influence the higher prevalence of a particular type of fall.

The main places of occurrence of falls were the patient's bedroom (65,4%) and the bathroom (26,5%), as shown in (Table 3).

The patient's bedroom is the place where it spends most of the time during hospitalization when compared with other places, such as, for example, bathroom and hallway, thereby justifying the higher prevalence of falls in this environment and corroborating the findings of other investigations[3,5,10].

Table 3. Place of occurrence of falls occurred in clinical and surgical IUs and ES from January 2011 to June 2012, Porto Alegre / RS, 2012.

Place of fall	N	%
Bedroom	121	65,4
Bathroom	49	26,5
Emergency room	13	7,0
Hallway	02	1,1
Total	185	100

Source: Original data from the Department of Epidemiology and Risk Management (DERM)

In most of the investigated events (116), the fall did not cause damages to the patient. Of the 69 injuries resulting from falls, 57 (82,6%) were classified as mild damage, which involved abrasions and contusions, five (7,2%) as moderate damage, which included cut-contusions injuries and skin lacerations, and seven (10,1%) as serious damage, which included fractures and altered mental status (Table 4).

Table 4. Type of injuries in the records of patients who were victims of falls occurred in clinical and surgical IUs and ES from January 2011 to June 2012, Porto Alegre / RS, 2012.

Type of injuries	N	%
Mild damage	57	82,6
Moderate damage	5	7,3
Serious damage	7	10,1
Death	0	0
Total	69	100

Source: Original data from the Department of Epidemiology and Risk Management (DERM)

The damages resulting from falls bring consequences for the patient, because of the possibility of worsening of its clinical condition, and for the institution, due to harms in his image and because of ethical and legal issues. The majority of the analyzed falls did not result in injury and, when it was present, was classified as mild in 82,6% of cases. The rates of mild damage resulting from falls in other studies were 31,1%[20],41,5%[11] and 74%[19]. When it was related to the occurrence of damage and the type of fall, it is observed that patients who fell from beds or stretchers had suffered more injuries than those who fell from their own heights, chairs, armchairs and toilet bowls (43,3% vs 34,4%). Of the 12 patients (17,4%) who experienced moderate or severe damage, six fell from their own heights, four from beds or stretchers and two from armchairs.

Of the total of falls, 14 (7,6%) cases influenced the increased length of hospital stay due to the necessity for expert assessment, surgical intervention, transference to the intensive care unit or clinical observation. In two cases (1,1%), there was record of occurrence in Customer Support Service (service offered to patients and family members that aim at listening, sending and monitoring criticisms, suggestions and praises); and one case (0,5%) presented legal repercussions (action for compensation for moral and material damages against the hospital).

FINAL CONSIDERATIONS

The incidence of falls in the surveyed institution corresponds to the rates described in the literature with regard to the hospital environment.

The epidemiological profile of hospitalized patients who suffered from falls pointed to a majority of elderly subjects, with no difference between males and females. The age ≥ 65 years and the altered gait/impaired physical mobility were the main existing risk factors. The falls occurred mainly from their heights, in the night shift, in the patient's room and caused mild injuries.

The results of this study, although limited by the retrospective analysis, by the passive search of data and for having been conducted in a single center, demonstrate the impact of falls in hospital institutions in the current context of quality and of safety.

The findings have contributed to a better understanding of the occurrence of falls in hospital environment, as well as of patients and victims of these events, which helps in the planning of preventive measures.

QUEDAS EM ADULTOS HOSPITALIZADOS: INCIDÊNCIA E CARACTERÍSTICAS DESSES EVENTOS

RESUMO

A queda é considerada um problema de saúde pública e um dos principais eventos a serem prevenidos nas instituições de saúde. Objetivou-se identificar a incidência e as características das quedas de pacientes adultos hospitalizados em unidades de internação (UIs) clínico-cirúrgicas e em atendimento no serviço de emergência (SE), assim como o perfil epidemiológico destes pacientes e os fatores de risco. Trata-se de um estudo retrospectivo dos casos de quedas de pacientes hospitalizados no período de 01 de janeiro de 2011 a 30 de junho de 2012. A análise foi realizada pela estatística descritiva. Foram analisados 185 eventos, sendo que 93,5% ocorreram em UI. A incidência foi de 1,7 para cada 1.000 pacientes-dia nas UIs e 2,6 para cada 1.000 internações no SE. A maioria ocorreu à noite (50,6%), no quarto do paciente (65,4%) e da própria altura (52,4%). Dos pacientes que caíram 90,8% tinham risco para queda pré-determinado, sendo a idade (≥65) o principal fator. Das lesões decorrentes, 82,6% apresentaram dano leve e 14 desses casos influenciaram no aumento do tempo de permanência hospitalar. Os achados contribuíram para o melhor conhecimento das quedas em ambiente hospitalar, auxiliando no planejamento e promoção de ações preventivas ao paciente internado.

Palavras-chave: Segurança do paciente. Acidentes por quedas. Assistência hospitalar.

CAÍDAS EN ADULTOS HOSPITALIZADOS: INCIDENCIA Y CARACTERÍSTICAS ESTOS EVENTOS

RESUMEN

La caída es considerada un problema de salud pública y uno de los principales eventos a ser prevenidos en las instituciones de salud. El objetivo fue identificar la incidencia y las características de las caídas de pacientes adultos hospitalizados en unidades de internación (UIs) clínico-quirúrgicas y en atención en el servicio de emergencia (SE), así como identificar el perfil epidemiológico de estos pacientes y los factores de riesgo. Se trata de un estudio retrospectivo de los casos de caídas de pacientes hospitalizados en el periodo de 01 de enero de 2011 al 30 de junio de 2012. El análisis fue realizado por la estadística descriptiva. Fueron analizados 185 eventos, siendo que 93,5% ocurrieron en UI. La incidencia fue de 1,7 para cada 1000 pacientes-día en las UIs y 2,6 para cada 1000 internaciones en el SE. La mayoría ocurrió por la noche (50,6%), en el cuarto del paciente (65,4%) y de propia altura (52,4%). De los pacientes que cayeron 90.8% tenían riesgo de caída predeterminado, siendo la edad (≥65) el principal factor. De las lesiones decurrentes, 82.6% presentaron daño leve y 14 de esos casos influenciaron en el aumento del tiempo de permanencia hospitalaria. Los hallazgos contribuyeron para un mejor conocimiento de las caídas en ambiente hospitalario, auxiliando en la planificación y promoción de acciones preventivas al paciente internado.

Palabras clave: Seguridad del paciente. Accidentes por caídas. Atención hospitalaria.

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