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INTEGRATIVE REVIEW ARTICLE

STRATEGIES FOR PREVENTION OF FALLS IN HOSPITALIZED ADULT PATIENTS: AN INTEGRATIVE REVIEW

ESTRATÉGIAS PARA PREVENÇÃO DE QUEDAS EM PACIENTES ADULTOS HOSPITALIZADOS: UMA REVISÃO INTEGRATIVA

ESTRATEGIAS PARA LA PREVENCIÓN DE CAÍDAS EN PACIENTES ADULTOS HOSPITALIZADOS: UNA REVISIÓN INTEGRADORA

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ABSTRACT

Objective: recognizing the strategies used to prevent falls and evaluating the evidences available in the literature about the effectiveness of actions for prevention of the event in hospitalized patients. *Method:* an integrative review aimed to answer the research question: << *What is the effectiveness of proposed strategies about patient safety related to falls in hospitalized adult patients?* >>. Held in November 2014 that used descriptors controlled in two international databases (MEDLINE and LILACS), resulting in 19 publications. ***Results:*** there was identified the implementation of actions related to the patient, the staff and the environment. Plans involving more than one strategy showed better results in preventing falls. ***Conclusion:*** it is up to the nurse to identify the needs/specifics and plan the strategy to be implemented, being essential that this choice be based on scientific evidence. ***Descriptors:*** Nursing; Accidental Falls; Patient Safety; Hospitalization.

RESUMO

Objetivo: conhecer as estratégias utilizadas para prevenir quedas e avaliar as evidências disponíveis na literatura sobre a eficácia das ações de prevenção do evento em pacientes hospitalizados. ***Método:*** revisão integrativa com vistas a responder a questão de pesquisa:<< *Qual a eficácia das estratégias propostas sobre segurança do paciente relacionadas a quedas em pacientes adultos hospitalizados?* >>. Realizada em novembro de 2014, que utilizou descritores controlados em duas bases de dados internacionais (LILACS e MEDLINE), resultando em 19 publicações. ***Resultados:*** identificou-se a implementação de ações relacionadas ao paciente, à equipe e ao ambiente. Planos que envolveram mais de uma estratégia apresentaram melhores resultados na prevenção de quedas. ***Conclusão:*** cabe ao enfermeiro identificar as necessidades/especificidades e planejar a estratégia a ser implantada, sendo fundamental que essa escolha seja baseada em evidências científicas. ***Descritores:*** Enfermagem; Acidentes por Quedas; Segurança do Paciente; Hospitalização.

RESUMEN

Objetivo: conocer las estrategias utilizadas para prevenir las caídas y evaluar las evidencias disponibles en la literatura acerca de la eficacia de las acciones de prevención del evento en los pacientes hospitalizados. ***Método:*** esta es una revisión integradora destinada a responder a la pregunta de investigación: << *¿Cuál es la eficacia de las estrategias propuestas acerca de la seguridad del paciente relacionada con las caídas en pacientes adultos hospitalizados?* >>. Se celebró en noviembre de 2014, que utiliza descriptores controlados en dos bases de datos internacionales (LILACS y MEDLINE), resultando en 19 publicaciones. ***Resultados:*** se identificó la implementación de acciones relacionadas con el paciente, al personal y al medio. Planes que involucran más de una estrategia mostraron mejores resultados en la prevención de caídas. ***Conclusión:*** le corresponde a la enfermera para identificar las necesidades/específicos y planificar la estrategia a implementar, siendo esencial que esta elección sea basada en evidencias científicas. ***Descriptores:*** Enfermería; Las Caídas Accidentales; Seguridad del Paciente; Hospitalización.

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INTRODUCTION

During hospitalization the individual is exposed to various circumstances that can result in security incidents. Security incident is considered the "event or circumstance which could have resulted, or resulting in unnecessary harm to the patient".[1] When there is injury to the patient happens to be called as an adverse event.[1] Among the most common adverse events related to the safety of the patient in the hospital, there are the falls in the proportion of two to five adverse events reported.[2]

The Brazilian Society of Geriatrics and Gerontology defines fall as "unintentional displacement of the body to below the starting position, with correction of disability in a timely manner, caused by multifactorial circumstances that compromise the stability".[3] Falls suffered during hospitalization can bring consequences to the patient, the staff and the institution.[4]

Fall prevention is extremely important because it can reduce the morbidity and mortality arising from this adverse event. In this context, the implementation of strategies to reduce falls is ethical role of the health professional before the hospitalized patient and is a relevant point that justifies this study which aimed to recognizing the strategies used to prevent falls in hospitalized patients and assessing the evidence available in the literature about the effectiveness of these interventions.

METHOD

This is an integrative review that followed the method of the six stages for the systematization: identification of the thematic and the selection of the research question; establishment of criteria for inclusion and exclusion of articles that will compose the study; definition of information to be extracted from the text; assessment of included studies; interpretation of results and presentation of the review.[5]

In the first stage it was elaborated the research question: << *What is the effectiveness of proposed strategies about patient safety related to falls in hospitalized adult patients?* >>

In the second stage the selection of articles was conducted using MEDLINE databases (Medical Literature Analysis and Retrieval System Online) and LILACS (Latin American and Caribbean Health Sciences). The studies inclusion criteria were: complete summaries in databases, articles available in full and free, related to the theme accidents from falls, in English, Portuguese or Spanish, from original research published by the year 2013. There were excluded articles that did not cover strategies used to prevent falls of adult patients in the hospitals.

There were used the following descriptors in health sciences: hospitalized for falls and accidents and patients, the key word hospital, with the following strategy for the two databases: ("accidents from falls") AND "inpatient" [Subject descriptor] AND "HOSPITAL" [Words].

The search was conducted in November 2014, and there were found seven publications in LILACS and 215 in MEDLINE. From the inclusion and exclusion criteria, the seven publications found in LILACS, two were excluded because it is thesis-five for not answering the question posed. Of the 215 publications found in MEDLINE, 39 were excluded for not having complete summary, 17 because they were not original research, 20 are not available in full and free, eight are not published in Portuguese, English or Spanish and 112 for not addressing the proposed theme. Therefore, the final sample of this integrative review consisted of 19 articles.

The third step was the analysis of the included articles from the construction of a summary table, which included the following items: authors; objectives/methodology/level of evidence; interventions; results/conclusion. In the fourth stage there was conducted independent evaluation of the authors in relation to the contents of the summary table and the levels of evidence classification.[6]

The presentation of results/synthesis of knowledge and the discussion will be in descriptive format, allowing the reader to evaluate the strategies used and their effectiveness and constitute the fifth and the sixth stages of the integrative review.

RESULTS

Figure 1 shows the synthesis of the 19 articles included in this integrative review, according to the strategies adopted to prevent falls, the main results and levels of evidence of such researches.

Authors/Country	Objective/Methodology/Level of evidence	Interventions	Results/Conclusion
Vieira, Berean, Paches, Caveny, Yuen, Ballash, et al[7]/ 2013. Country: USA	Evaluating the effectiveness of an intervention program to prevent falls in geriatric patients. Type of study: randomized clinical trial. Level of evidence: 2.	Strategy: the evaluated program was divided into three phases: 1) identifying patients' risk of falling through the tool for risk assessment and effective Recommendations for reducing falls (RARE)" and implement strategies as identified risks; 2) implementing prevention measures, related to organization of environment and transportation; 3) implementing measures related to the environment (environmental signage, lighting of the halls); held meetings with the team; and, advised patients/escorts (folders).	The percentage of falls intervention group decreased significantly after the implementation of actions (22% vs. 9%). *Conclusion*: effective.
Warren, Hanger[8]/ 2013. Country: Australia	Investigating whether the increase in thickness of carpets reduces the rates of fall or fractures. Type of study: observational study. Level of evidence: 6.	Strategy: coat the floor of geriatric units with vinyl mat with 5 mm thickness.	There was no significant decrease in the incidence rates of falls or fractures. *Conclusion:* non effective.
Ohde, Terai, Oizumi, Takahashi, Deshpande, Takekata, et al.[9]/ 2012. Country: Japan.	Evaluating the effectiveness of multidisciplinary actions to increase the quality of a falls prevention program. Type of study: observational study. Level of evidence: 6.	Strategy: assessing risk of patient falls; implementing Protocol for prevention of falls and related environmental interventions (placing and leveling the floor); team training; interventions based on risk factors (orientation as factors identified); flag on the edge of the bed of patients at high risk for falls; and, add motion alert device in patients who are unable to apply for nursing assistance.	25% reduction in the rate of falls. Conclusion: the training and integration of health care professionals to prevent falls can make the program more efficient. Effective.
Shorr, Chandler, Mion, Waters, Liu, Daniels, et al.[10]/ 2012. Country: USA	Evaluating the use of alarms on the beds to prevent falls. Type of study: randomized clinical trial. Level of evidence: 2	Strategy: identify the risk of patient falls, through the Morse Fall Scale (MFS). From the risk, in the control group: perform round of nursing and preventive strategies; intervention group: perform rounds, preventive strategies and add alarm beds.	There was no statistical difference in the rate of falls and injuries arising from the event. *Conclusion*: non effective.
Yates, Tart[11]/ 2012. Country: USA	Evaluating and comparing the incidence of falls among psychiatric patients and clinicians before, during and after review of the policies for the prevention of falls. Type of the study: retrospective and comparative. Level of evidence: 6	Strategy: revising the policy of prevention of falls in order to simplify the risk assessment and review the prevention interventions (non-slip floor; analysis of medication for high-risk patients; education folders; permanent education of the professional).	Psychiatry: 32% decrease in falls; Clinical Medicine: increase of 112% of the falls, between the phases. From these results was carried out review of the policies, which performed effectively. Conclusion: effective in part.
Heaton[12]/ 2012. Country: England	Evaluating the improvement of quality of service falls after implementation of policies against falls. Type of study: randomized clinical trial. Level of evidence: 2	Strategy: performing risk assessment by means of a predetermined plan and implementing strategies related to risk factors identified.	18% reduction in the rate of falls and increase in the membership of the plan defaults. Conclusion: effective.
Forrest, Huss, Patel, Jeffries,	Reporting the results of program to prevent falls in the	Strategy: guiding employees, patients and family members; assessing risk for falls and	5,2% reduction in the rate of falls. Conclusion: effective.

Myers, Barder, et al.[13]/ 2012. Country: USA	rehabilitation unit. Type of study: descriptive. Level of evidence: 6	performing interventions relating to the patient's risk factors and the environment; performing nursing rounds; using alarms in beds and wheelchairs; and reviewing daily medications.	
Tucker, Bieber, Attlesey-Pries, Olson, Dierkhising [14]/2012. Country: USA	Evaluating the feasibility and the results of nursing rounds in orthopedics units. Type of study: non randomized clinical trial. Level of evidence: 3	Strategy: nursing staff performs visits, reinforcing the availability to help the patient (rounds).	Not found a difference in rates of falls between the periods pre-during-post intervention. Conclusion: non effective.
Clarke, Timm, Goldberg, Hattrup[15]/ 2012. Country: USA	Determining whether prevention of falls in the preoperative period is satisfactory to prevent postoperative falls. Type of study: historic cohort. Level of evidence: 4	Strategy: guiding patients on pre-hospitalization consultation about the risk factors that contribute to the occurrence of falls during hospitalization and that can be prevented.	Patients in the intervention group: don't fell postoperatively. Patients in the control group: rate falls from 4,1% in the postoperative period. Conclusion: although a little time-consuming and therefore expensive, the strategy proved to be effective.
Haines, Hill, Hill, McPhail, Oliver, Brauer, et al.[16]/ 2011. Country: Australia	Assessing the effectiveness of patient education on preventing falls, comparing different strategies of health education. Type of study: randomized clinical trial. Level of evidence: 2	Strategy: Model 1: physiotherapist distributes brochures and sensitizes patients compared the occurrence of falls, by means of audiovisual material. Model 2: materials, without guidance of physiotherapist. The control group did not receive any kind of education, but were carried out standard precautions.	Patients who received the intervention Model 1,4% reduction in the rate of falls. Conclusion: the intervention which included the participation of the physiotherapist proved to be more effective.
Hunderfund, Sweeney, Mandrekar, Johnson, Britton[17]/ 2011. Country: USA	Check the feasibility and the results of the doctor and the nurse to assess the risk of falls in hospitalized patients. Type of study: randomized clinical trial. Level of evidence: 2	Strategy: assessing the risk of falling through the scale model of Hendrich and risk from the risk classification there were made interventions related to risk factors and distributed educational materials. The above were performed by the nurse. Added if the medical assessment to identify the risk of falling of the patient.	1,57% of reduction in the rate of falls after the introduction of the medical assessment. Conclusion: effective.
Haines, Bell, Varghese[18]/ 2010. Country: Australia	Evaluating the effectiveness of introducing low beds to reduce rates of falls and injuries as a result of these. Type of study: randomized clinical trial. Level of evidence: 2	Strategy: Introduce low beds.	There was no significant difference in the rate of falls and injuries among the intervention and control groups. Conclusion: non effective.
Krauss, Tutlam, Costantinou, Johnson, Jackson, Fraser[19]/ 2008. Country: USA	Measuring the adhesion of professionals about falls prevention program with several strategies and analyzing the effectiveness of this program in reducing falls and related injuries to the event. Type of study: randomized clinical trial. Level of evidence: 2	Strategy: guiding professionals concerning the use of program for prevention of falls; guiding the patient to prevent falls; modifying the environment as necessary; evaluating patients by MFS and flag with bracelet and plaque at the edge of the bed or on the door of the room the patients at risk; and included participation of the doctor in the review of medicines and food pairing suggestions and a physiotherapist or occupational therapist.	Reduction of 43% in the rate of falls. Conclusion: effective.
Renteln-Kruse, Krause,	Evaluating the effect of strategies	Strategy: assessing risk of falls of patients through the tools of	Reduction of 18% in the rate of falls, no

Geogr[20]/ 2007. Country: Germany	implemented by an interdisciplinary team to reduce falls in geriatric hospitals. Type of study: non randomized clinical trial. Level of evidence: 3	daily life activities (AVD) and Evaluation of Risks of Falls in Hospitalized Elderly St. Thomas (Stratify). From the assessment, identifying the need to put risk alert to falls on the edge of the bed and to provide devices to assist in mobility. Distributing brochures on prevention of falls.	significant reduction in the rate of injurious falls. Identified relative risk reduction. Conclusion: effective.
Burleigh, McColl, Potter[21]/ 2007. Country: Scotland	Determining whether the use of vitamin D has a positive effect in reducing falls in the elderly hospitalized. Type of study: randomized clinical trial. Level of evidence: 2	Strategy: Introduce 800 IU of calecalciferol (vitamin D) + 1200 mg of calcium carbonate once daily in the intervention group, while the control group received 1200 mg of calcium carbonate once daily.	The introduction of medication (vitamin D) did not reduce the rate of falls. Conclusion: non effective.
Giles, Bolch, Rouvray, McErlean, Whitehead, Phillips, et al.[22]/ 2006. Country: Australia	Evaluating effects of introduction of volunteer escorts, in the rate of falls. Type of study: non randomized clinical trial. Level of evidence: 3	Strategy: assessing risk for falls by Stratify. Patients with much risk were placed in the infirmary with "safety bays" to be observed closely by volunteer escorts. The functions of the escorts were: observe the patient and intervene, if necessary, recognize and communicate any change in behavior that could increase the risk of falls, assist in the basic activities and therapeutic activities.	In the presence of escorts were not recorded, however 24% of falls occurred in the institution occurred in the security bays, indicating that this strategy alone is not effective to prevent falls. Conclusion: effective in part.
Schwendiman n, Bühler, Geest, Milisen[23]/ 2006. Country: Switzerland.	Analyzing the rate of falls and injuries arising out of the event before and after the implementation of an interdisciplinary program of prevention. Type of study: cohort study. Level of evidence: 4	Strategy: assessing the risk of patient falls at the time of admission. Patients identified at risk were examined by the doctor and from that evaluation were implemented specific actions and to prevent falls.	Reduction of 1,3% in the rate of falls back to increase later, not significant. Decrease in the rate of minor injuries and increase the rate of injuries more severe. Conclusion: non effective.
Healey, Monro, Cockram, Adams, Heseltine[24]/ 2004. País: England	Reducing the risk of falls by using different interventions, based on the risk factors of the individual. Type of study: randomized clinical trial. Level of evidence: 2	Strategy: guiding patients through folders, regarding risk factors for falls that could be avoided. Patients considered to be at risk were given specific nursing interventions, evaluation of mobility by the physiotherapist and physician medication review.	Reduction of 21% in the risk of falls in the infirmary. There was no evidence that the intervention decreases rates of injury resulting from falls. Conclusion: effective.
Szumlas, Grozek, Kitt, Payson, Stack[25]/ 2004. Country: USA	Describing an approach to preventing falls conducted under the assumption that all patients are at risk of falling and that all professionals are responsible for preventing. Type of study: descritive. Level of evidence: 6	Strategy: revising programs already established, focusing on the individual needs of patients. Assessing the patient at the time of admission, those identified at greater risk were given at the door signage; perform "rounds" of nursing; distribute brochures for patient education/escorts.	Reduction of 20% in the rate of falls. Conclusion: effective.

Figure 1. Description of the selected articles (LILACS and MEDLINE), according to authors/country, objective/methodology/level of evidence, interventions and synthesis, main results/conclusion. Santa Maria, RS, 2014.

Of the 19 articles selected, nine (47,4%) belonging to the level of evidence 2 (randomized controlled trial),[8,10,12,16-9,21,24] three (15,8%) to the level of evidence 3 (non-randomized clinical trial),[14,20,22] two (10,5%) to the level of evidence 4 (cohort and case-control),[15,23] (26,3%) to the level of evidence 6 (study descriptive).[7,9,11,13,25]

Increased percentage studies showed strong evidence levels (2, 3 and 4) and were conducted in developed countries. The use of evidence-based practice (EBP) improves the quality of care, since it links the research

results and the application of these in practice, making the PBE an important ally in nursing work process,[26] assisting in planning and decision.

To reduce outages were implemented different actions, which are associated with the patient, the staff and the environment. Among the actions implemented most often stand out the evaluation of the patient and the risk of falls, for further implementation of actions/interventions according to identified needs and the orientation / awareness of patient/companion and/or staff about the risk factors for falls present in the hospital environment. We note also that a higher percentage of studies (N = 13; 68,4%) allied more than one strategy.[8-10,12-3,16-7,19-20,22-5]

Of the studies analyzed, according to evaluations of the authors, 11 (57,9%) indicated that the goal of reducing falls rates was achieved, demonstrating the effectiveness of these[8-9,12-3,15-7,19-20,24-5] and two (10,5%) studies demonstrated efficacy in part, or only at baseline.[22-3]

Table 1 summarizes the operations as described strategies to prevent falls and the number of times each strategy was employed.

Table 1. Interventions to prevent falls in hospitalized adult patients. Santa Maria/RS. 2014. (N = 19)

Identified strategies to prevent falls	Frequency	
	n	%
Assessment of the risk of falling	11	57,9
Patient orientation/accompany	10	52,6
Interventions related to risk factors identified from the assessment	08	42,1
Awareness of the health team	05	26,3
The multidisciplinary team to prevent falls	05	26,3
Organization/suitability of environment	05	26,3
Signs on the edge of the bed/Bangle/door patient at high risk for falls	04	21,1
Nursing rounds	04	21,1
Medication review	04	21,1
Motion alarm device	03	15,8
Introduction of medication	01	5,3
Introduction of low beds	01	5,3
Floor coating	01	5,3
Addition of volunteer escorts	01	5,3
Safety Bay	01	5,3

It is observed that the highest percentage of the analyzed studies used more than one strategy. Authors state that the use of a falls prevention program involving more than one action can bring positive results.[13] In this sense, the 11 articles that demonstrated efficacy nine (81,8%) have implemented more than one action.[9,12-3,17-20,24-5] Furthermore, it is noteworthy that the use of multifactorial interventions are time consuming, which could affect its applicability.[23]

DISCUSSION

For better understanding of the strategies used to prevent falls discussion was divided into three thematic categories: strategies to prevent falls related to the patient; strategies to prevent falls related to staff; and strategies for preventing falls related to the environment.

♦ Strategies for prevention of falls related to patient

The assessment of risk of falls of patients through different tools (RARE, MFS, Hendrich Risk Model, Stratify, AVD) was the most cited strategy for the prevention of falls. From this evaluation interventions were carried out related to the specific risk factors presented by the patient, and conducted the orientation of the patient/companion on measures that can prevent the event.

The risk assessment through tools/structured scales or pre-established plans allows the institution and professionals to assessing the patient in a systematic way about the risk of falls, supporting the actions targeting patient's safety.[27] Concerning this, the risk assessment and identification of falls to assist in planning strategies to intervene with the identified factors.[28]

Education strategies for patients/caregivers was also one of the strategies implemented (N = 10; 52,6%). The involvement of patients and caregivers in prevention strategies, guidance on the risk factors and the importance of their participation in this process help in reducing falls.[29]

♦ Strategies for prevention of falls related to the team

Regarding the executor of the strategy, there was predominance of nursing professionals. In that sense, the nurse is appointed as the professional responsible for

preparing the patient's care plan and implementation strategies based on substantiated data.[30] Still, study in rehabilitation unit states that the leadership of the nursing staff on the orientation of employees, patients and family, considering them to the risk factors and best practices to prevent falls, can make a significant difference in the incidence of the same.[13]

Studies show that incorporate and sensitize other professionals can be another effective alternative. Those included the physical therapist participation in patient education[16] and the assessment of mobility[24]; medical evaluation with the nurse to identify the risk of falls[17]and to review the medication[24], and which reinforced the responsibility of everyone in preventing falls[25] were effective and reduced the rate of falls.

♦ Strategies for prevention of falls related to environments

Related to the environment, the organization and adequacy of this were the most implemented measures in the studies analyzed, suggested to be important allies in the prevention of falls during hospitalization.[7,9,11,13,19] Ensuring a safe environment is the responsibility of institutions and should be used by all patients.[11]

Strategies applied in isolation have not proved effective.[8,18] This finding points to the importance of implementing measures related to allied environment with other actions demonstrating efficacy.[7,9,13,19]

CONCLUSION

It was found that there are several strategies for preventing falls in hospitalized patients who are effective. The joint action as the patient risk identification and implementations strategies from risk factors, exposure of patients and staff organization of the environment among others, showed more satisfactory results. The choice of the best strategy will depend on the specificity of the unit and patients. Thus, it is up to the nurse to identify them in order to plan care, based on scientific evidence.

This review highlighted the gap Brazilian productions about the theme and the need for research development with designs that produce strong evidence regarding the investigated theme.

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