SALUD, CIENCIA Y TECNOLOGÍA

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SHORT COMMUNICATION

Preventing falls in the aged: a challenge in patient safety

Prevenir caídas en personas mayores: un desafío en la seguridad del paciente

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ABSTRACT

Falls and fall-related injuries are considered an important public health problem, with implications for the health and well-being of older people and society in general. This review aims to analyze updates on the topic of falls, in order to understand the magnitude of the problem, associated factors and main preventive interventions. Assessment and intervention must be multifactorial and directed at clinical and environmental factors. Education and promotion of physical activity and exercise emerge as the most effective interventions in reducing the risk of falls in older people. From this reflection emerge the bases for the practice and formulation of health policies in the area of patient safety, in order to minimize the risks of falls and their occurrence in aged people, in hospital environments and community contexts.

Keywords: Aged; Accidental Falls; Education; Exercise; Patient Safety.

RESUMEN

Las caídas y las lesiones relacionadas con las caídas se consideran un importante problema de salud pública, con implicaciones para la salud y el bienestar de las personas mayores y de la sociedad en general. Esta revisión tiene como objetivo analizar las actualizaciones sobre el tema de las caídas, para comprender la magnitud del problema, los factores asociados y las principales intervenciones preventivas.
La evaluación y la intervención deben ser multifactoriales y dirigidas a factores clínicos y ambientales. La educación y la promoción de la actividad física y el ejercicio emergen como las intervenciones más efectivas para reducir el riesgo de caídas en las personas mayores.
De esta reflexión surgen las bases para la práctica y formulación de políticas de salud en el área de la seguridad del paciente, con el fin de minimizar el riesgo de caídas y la ocurrencia de caídas en personas mayores en ambiente hospitalario y contextos comunitarios.

Palabras clave: Anciano; Accidentes por Caídas; Educación; Ejercicio Físico; Seguridad del Paciente.

INTRODUCTION

The process of population aging is a global phenomenon; currently, 20 % of the population is over 65 years old in approximately two dozen countries, which has a significant impact on all areas of public life.[1]

According to data from the World Health Organization, globally, the age group of people over 60 years old has surpassed the number of children under 5 years old.[2] Furthermore, by 2050 the age group of 15 to 24

years old will be overtaken by the age group of people over 65 years old.[2] This increase in life expectancy at birth, associated with global demographic change, brings with it social and economic challenges, and this phenomenon is accompanied by an increase in the number of years lived with comorbidities.[3] It is in this context and with increasing age that falls and subsequent injuries may arise, contributing to the emergence of a relevant public health problem.[4]

In this sense, we intend to analyze the updates on the topic of falls, both in a hospital environment and in a community context, analyze the dimension of the problem, as well as identify the associated factors and proposals for preventing falls, in the main environments where the elderly person lives.

METHOD

This is a literature review. A bibliographical search was carried out in databases during the month of April 2024. The databases used were SCIeLO, EBSCO (CINAHL e MEDLINE) and Google Scholar with the following descriptors: Accidental Falls, Risk, Community, Hospital. As inclusion criteria, articles that address the risk of falling, intervention in preventing falls and hospital and community context were defined. We chose the last 4 years to update, include and analyze articles with a higher level of evidence (systematic reviews with and without meta-analysis).

Dimension and consequences of falls

Falls in aged people appear to constitute an important public health problem, with adverse consequences for these people in particular and for the community in general.[5,6]

The global prevalence of falls in the aged, obtained in a meta-analysis that included 104 studies, representing a total sample of 36 740 590 participants, was 26,5 % (95 % CI 23,4–29,8 %), with higher rates in Oceania and America, respectively, 34,4 % (95 % CI 29,2–40 %) and 27,9 % (95 % CI 22,4–34,2 %).[5] The age-standardized incidence of falls was 2,238 (1990-2,532) per 100,000 in 2017, demonstrating a 3,7 % decline from 1990 to 2017.[7]

In the Western European region, in 2017, 11,7 million (UI 10,3-13,2 million) people aged 70 and over used health services due to an injury, of which 8,4 million (71,9 %, UI 7,2-9,8 million) were caused by falls. The incidence rates of fall-related injuries in older people requiring healthcare varied greatly from country to country, with Greece and Portugal having the lowest incidences and Norway having the highest.[6]

In Portugal, from 2010 to 2018, there were 383,016 hospitalizations related to falls, corresponding to 2,1 % of total hospitalizations in the same period.[8] The incidence rate of fall-related injuries in Portugal was 8,086 per 100 000 (UI 6 790–9 659), with a fatality rate (mortality rate/incidence rate) of 0,4 %.[6]

Globally, the age-standardized mortality rate was 9,2 (8,5-9,8) per 100 000, corresponding to 695 771 (644 927–741 720) deaths in 2017.[7]

In Western Europe, mortality rates in Greece (29 per 100 000 (UI 27-31)) and Portugal (36 per 100,000 (UI 33-39)) were the lowest and Norway (153 per 100 000 (UI 147- 159)) and Switzerland (153 per 100 000 (UI 141–166), were the highest.[6]

Worldwide, falls resulted in 16 688 088 (15 101 897–17 636 830) years of life lost (YLLs), 19 252 699 (13 725 429–26 140 433) years lived with disability (YLDs) and 35 940 787 (30 185 695–42 903 289) disability-adjusted life years (DALYs) across all ages.[7]

In the Western European region in 2017, the total burden of disease due to injuries in the aged was 2,5 million DALYs (UI 20.–3,0 million), of which 1,4 million DALYs (54,5 %, UI 1,1–1,7 million) were due to an injury related to a fall. YLLs originated 33,5 % of DALYs from falls (453 213 YLLs (UI 433 949–471 961)) and YLDs were responsible for 66,5 % of DALYs from fall-related injuries, that is, 897 968 YLDs (UI 632 890–1 221 547).[6]

Fall risk factors in aged people

In general, some demographic characteristics, comorbidities and lifestyle factors can influence the risk of falls and in this sense they must be taken into account.

In a systematic review that included 104 studies with a total sample of 36 740 590, it was found that most of the reasons that lead to falls in the aged are associated with the living environment in which aged people find themselves, such as inadequate lighting in the house, use of chairs inappropriate bathing and toilet facilities, use of inappropriate footwear, mobility when walking after taking sleeping medication, lack of health surveillance (vision and hearing), carrying heavy equipment.[5]

In a meta-analysis involving 34 studies, factors associated with advanced age, lower education, polypharmacy, malnutrition, living alone, living in an urban area, smoking and alcohol consumption were identified. Furthermore, the main comorbidities associated with falls included heart disease, hypertension, diabetes, stroke, frailty, previous history of falls, depression and Parkinson's disease.[9]

An important factor associated with falls is the consumption of polypharmacy. The global prevalence of polypharmacy was estimated at 30,2 %, 61,7 % and 56,9 % for community-dwelling individuals, hospitalized people and institutionalized people, respectively.[10]

A systematic review and meta-analysis that included 31 studies, with a sample of 70 868 community-dwelling older people, presented strong evidence that age, female sex, fear of falling, depression, visual impairment, dementia and balance disorders increase the risk of falls in community-dwelling aged people.[11] Fear of falling has been considered an important risk factor associated with falling, however, it is also associated with female gender, advanced age, impaired balance and history of falls.[12]

The under-reporting of fall events also reveals itself as a problem that prevents the adequate processing of information, thus complicating the process of implementing a culture of patient safety.[13] This underreporting may also explain the discrepancy in some values between similar realities presented previously.

In assessing fall risk, several risk assessment instruments have been developed for factors associated with clinical and environmental levels. In a recent review of fall risk assessment instruments, 38 different instruments were identified.[14] The fall risk assessment instruments validated for the Portuguese population are the Morse Fall Scale,[15] Hendrich II Fall Risk Model,[16] Activities-specific Balance Confidence Scale (ABC Scale),[17] Falls Efficacy Scale— International (FES-I),[18,19] and the Timed Up and Go (TUG) test.[20] However, the most used in clinical practice are the Morse Fall Scale, FES-I version 16 items [18] and short version with 7 items [19] and the TUG.

Taking into account that the risk of falling is multidimensional, to date there is no "ideal" assessment instrument that can be used in any context or that performs a perfect risk assessment. In this sense, the simultaneous application of several instruments is recommended, always considering the direct and in-depth analysis of each particular situation by the healthcare professional.[14]

Prevention of falls in aged people

The problem of falls has harmful consequences for people in all contexts, therefore, it is a phenomenon that needs to be seriously considered by both policy makers and health care providers, so that appropriate plans for preventive interventions are drawn up to reduce the rate of falls in aged people. In this sense, policies must be developed to create a living environment suitable for a safe environment for aged people, such as adequate lighting in the house and avoiding total darkness in the house, use of bath and toilet chairs, use of appropriate footwear, not walking after taking sleeping pills, regular ophthalmological and hearing exams, not carrying heavy equipment, and having the telephone on hand.[5]

In a hospital environment, educating patients and staff has been one of the most effective interventions in reducing hospital falls. Next, multifactorial interventions, which consider environmental modifications and rehabilitation exercises, are those that have demonstrated a tendency to produce a positive impact on this reduction. However, interventions that focused on the placement of chair alarms, bed alarms, wearable sensors and the use of scored risk assessment instruments were not associated with a significant reduction in falls.[21]

In the community context, the risk of falling can be reduced through the implementation of exercise programs focused on balance and strength training, especially in high-risk people, combined with interventions on modifiable risk factors.[22]

In a meta-analysis of community falls prevention, exercise was the most common pre-specified component of multifactorial interventions (85 %; n=35/41). And it has been found that multifactorial interventions (with exercise prescription) can reduce the rate of falls and reduce the risk of older people suffering one or more falls and recurrent falls.[23] These data were corroborated by another meta-analysis that found that exercise is associated with a lower risk of falls and fractures related to falls. Although the common components of multifactorial interventions were physical exercise, assistive technology, environmental assessment and modifications, quality improvement strategies and basic fall risk assessment, had a significant effect on reducing falls in community-dwelling older adults.[24]

Also noteworthy is the Medication Review and Reconciliation [25] in cases where the aged person takes 5 or more medications to prevent falls, as well as interventions to minimize the fear of falling.[26]

This update review made it possible to identify the most common risk factors at the hospital and community level. These aspects are fundamental for the construction of intervention plans both at the health policy level and in clinical practice.

The studies found highlight the importance of evaluating factors associated with falls, at a clinical and environmental level, to reduce the risk of falling and its consequences. According to a review[14], there are multiple fall risk assessment instruments, however, there is no ideal, which is why the health professional must carry out an analysis centered on the aged person and take into account their clinical experience.

The intervention to prevent falls, according to the Nursing Intervention Classification (NIC),[27] is essentially multidimensional, aimed at modifiable risk factors, both clinical and environmental. However, the articles included in this review highlight education as the most effective intervention in reducing falls.[21] The Registered Nurses' Association of Ontario (RNAO) Preventing Falls guidelines also point to a multidimensional intervention with an emphasis on the patient and caregiver education.[28]

Educating the team, the aged person and their caregiver is one of the most effective interventions, as it

allows them to become aware of the risk and change their behavior. The promotion of physical activity and exercise, associated with intervention in modifiable factors, is effective in reducing falls in aged people living in the community.

It is also worth highlighting the issue of therapeutic reconciliation in aged people who have polypharmacy.[26,29]

These interventions must be aligned with the policies of the World Health Organization, which aim to improve healthy aging in order to prevent diseases, promote health, and maintain functional capacity.[30]

CONCLUSION

This update review made it possible to analyze the latest evidence on the issue of falls, in order to understand the extent of the problem, both in hospital and community contexts, especially in aged people. The main factors associated with falls were identified and discussed and the main interventions to minimize the risk of falling were acknowledged. The evidence points to the main clues for the creation of a guide of good practices in the field of patient safety, for the prevention of falls in the aged person in hospitals and in the community, being the starting point for policy makers and health professionals.

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