

THE AGING PROCESS AS A TRAUMA AGENT

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ABSTRACT

The present work aims to identify the origin of the trauma suffered by the elderly as well as the associated risk factors and the main consequences. Today's society is inserted in a plot of great social transformations, one of them being the phenomenon known as demographic transition. This, in turn, consists in reducing fertility and mortality rates, reflecting the change in the postmodern social body, formerly young, and moving towards an increasing contingent of the elderly. It is noteworthy that the geriatric and gerontological literature considers an elderly person from 65 years of age. It is noticed that the decrease in physiological reserve in the elderly may be directly related to physical trauma in this population. Changes related to the central nervous system as well as the musculoskeletal system may influence the increased incidence of trauma in the elderly. Therefore, it is necessary to understand the changes related to aging and the risk factors associated with trauma in order to identify and intervene in the main consequences of trauma in the elderly.

KEYWORDS: ELDERLY; TRAUMA. EPIDEMIOLOGY; RISK FACTORS

INTRODUCTION

Contemporary society is part of a phenomenon known as demographic transition, caused by the reduction of fertility and mortality rates and reflecting on the rebuilding of the social body that was once young, and moving towards an increasing contingent of elderly people¹.

Commonly, the geriatric and gerontological literature considers an elderly individual over 65 years of age. Faced with the demographic transition process, with the increase in life expectancy, the elderly population is increasingly subject to a period of dependence and need for care before the end of life. Consequently, geriatric traumatology, a branch of geriatrics that addresses the elderly injured by external causes, the nature of the injuries and the treatment, becomes increasingly relevant².

Trauma is defined as a harmful event that arises from the release of energy or physical barriers to the normal flow of energy and this can be of mechanical, chemical, thermal, irradiation or electrical origin.³ Although trauma is more frequent in elderly individuals and geriatric emergencies are mainly clinical in nature, trauma in the elderly is a remarkable condition since injuries easily tolerated by young patients can result in considerable mortality rates in the elderly. In the elderly, trauma is one of the main causes of injuries, disabilities and hospitalizations, presenting itself as the fifth leading cause of death in this population, and aging directly influences the increase in morbidity and mortality rates related to trauma⁴.

The decrease in physiological reserve in the elderly, that is, organic changes related to aging, may be directly related to physical trauma. The central nervous system presents a progressive reduction in psychomotor capacity and memory, altering posture and often gait; there is a decrease in visual and hearing acuity; in the locomotor system there is loss of muscle mass with weakness, decreased height and bone demineralization, especially in women, leading to osteoporosis and greater risk of falls and fractures.

Care for elderly trauma patients follows the same parameters as adults, respecting the peculiarities characterized by anatomical and functional changes, presence of associated diseases and use of medications². With advancing age, medical problems have a systemic impact on the individual's ability to resist even minor traumas, that is, mortality is directly proportional to the number of pre-existing diseases⁴.

OBJECTIVES

Identify the origin of traumas suffered by the elderly as well as the associated risk factors and main consequences.

METHODS

This is a scientific literature review study which comprised a series of articles searched in the database of the Latin American and Caribbean Literature in Health Sciences (LILACS), the International Health Sciences Literature (Medline) and of Scientific Electronic Library Online (SciELO).

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Searches in the databases began on August 23, 2019. With the keywords "elderly", "trauma", "epidemiology", "risk factors" and the main objective of the work guiding the research, a total of 25 articles were selected, and, of these, 16 were excluded, remaining 9 articles to compose the body of the work. The selection criteria for the remaining articles were based on: publications made in Portuguese and English. Publication date was not evaluated as a selection criterion.

After listing the articles that made up the study, a detailed reading of the manuscripts was started, recording the relevant data, and then carrying out the effective elaboration of the work.

RESULTS

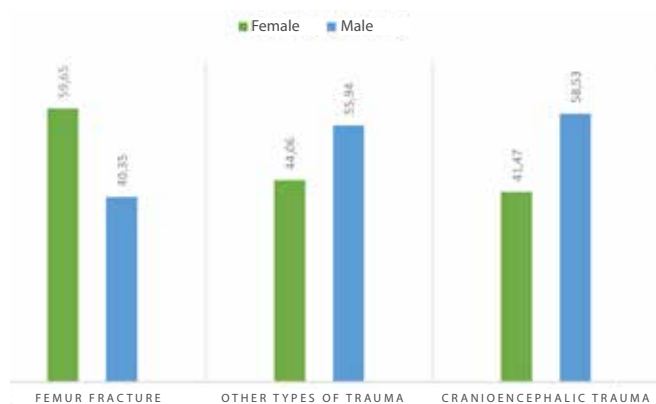
A study carried out by the American Geriatric Society pointed out the visual deficit as one of the intrinsic risk factors for falls in the elderly. Low visual acuity can be a factor related to loss of balance, leading to falls, by decreasing postural stability, or indirectly, by reducing mobility and physical function.⁵ Ivers et al, through a cohort of The Blue Mountains Eyes Study, investigated the association between visual impairment and falls in 3654 elderly individuals in the community. The results indicated that a low visual function (glare, contrast, acuity and visual field) is statistically related to two or more episodes of falls.⁶

Trauma in an elderly individual has far more impacting repercussions when compared to other age groups in the population. It is the fifth leading cause of mortality in the age group over 65 years of age, with the fall being responsible for 70% of accidental deaths in people above 75 years old⁴. In addition, trauma brings complications inherent to hospitalization, such as pneumonia, acute myocardial infarction and pulmonary thromboembolism⁷. Furthermore, fall trauma has repercussions in the psychosocial sphere, as the loss of confidence to walk safely can result in worsening of functional decline, depression, low self-esteem and social isolation. After a fall, the elderly may restrict their activities due to fear, pain or even their own functional incapacity. Post-fall rehabilitation can be slow and, in the case of prolonged immobility, leads to complications such as venous thromboembolism, pressure ulcers and urinary incontinence. Becoming dependent, the fall victim may demand more time from their caregiver, causing social problems and thus making them more likely to require institutionalization⁸.

With the postmodern senescence process, the fall is the occurrence that most affects the elderly over 65 years of age, contributing to the reduction of independence and greater morbidity and mortality. It is noticed that there are several factors that corroborate the occurrence of trauma in the elderly, such as being run over due to lack of infrastructure (intervention in the conclusion), reduction in the physiological reserve associated with aging, the coexistence of comorbidities associated with the use

of different medications. Oliveira et al, through a retrospective analysis in order to identify the main etiologies of trauma in elderly in emergency care, observed that automobile, motorcycle, cycling, aggression and pedestrian accidents were more frequent in male elderly, with falls being more frequent in elderly females. It was also found that most elderly people who were retired, housewives or who worked in the area of general services presented falls as the main cause of trauma.

On the other hand, the elderly who worked in the commercial area had car accidents as the etiology of trauma. Finally, the aforementioned study also allowed us to infer that falls are the main cause of trauma in the elderly and that, in most cases, femur fractures are linked to this event, followed by head trauma and other types of trauma⁹.



Graph 1. Percentage distribution of types of trauma in relation to gender. Source: Adapted from Oliveira K. A de et al, 2013.



Graph 2. Percentage distribution of causes of trauma by gender. Source: Adapted from Oliveira K. A de et al, 2013.

DISCUSSION

The bone is a structure that is in a constant process of mineralization and demineralization throughout the individual's life. However, it is observed that the elderly present an organic imbalance in this mineral balance since there is

a predominance of demineralization to the detriment of osteogenesis, leading to loss of bone mass. It is worth noting that women, especially those who are in hypoestrogenism, suffer from this phenomenon more severely, since estrogen is a hormone that stimulates the bone mineralization process. Thus, it is inferred that one of the main factors responsible for bone fragility and therefore a higher risk of fracture is this predominance of senile demineralization.

Regarding the senescence of the central nervous system, it is observed that several changes occur, reflecting the psychomotor and cognitive reduction of the elderly individual. Decreased nerve impulse conduction velocity and reduced brain mass with advancing age may help to understand psychomotor retardation and senile cognitive impairment. It is noticed that these changes, in addition to making the individual more physically and psychologically dependent, can make them more susceptible to falls and other accidents due to the reduction or absence of the psychomotor response necessary to avoid trauma.

Associated with aging, there is an increase in the prevalence of sensory deficits, such as auditory and visual ones. It is worth noting that one of the first systems to suffer the impact of physiological aging is the sensory, and particularly the visual. The most frequent visual changes are decreased visual acuity, peripheral visual field, sensitivity to contrast, color discrimination, ability to recover from exposure to blinding light, dark adaptation and the sense of depth.

CONCLUSION

The study in question, based on the literature review, allowed us to conclude that the physiological changes inherent in the aging process are determinant for the increased risk of falls and trauma among the elderly, with a prevalence for males over 65 years of age and highly lethal for individuals over 75 years of age.

Furthermore, it could be observed that traffic accidents and falls caused by the individual's aging process are the main causes of trauma in the elderly.

Finally, trauma in this age group is still a great challenge to be overcome, both in its treatment and management, as well as in the rehabilitation of this individual, as in addition to the physical and physiological sequelae of these injuries, it is also necessary to pay attention, for the psychological ones, which can be as debilitating as the physical for this individual, which contributes to the decline in the quality of life of these individuals.

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