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Socio-Hygienic Characteristics of Prevalence of Acute Injuries in Elderly and Older Adults: Review of the Problem

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Abstract

Over the past few decades, the demographic situation in the world has been characterized by a progressive increase in the number of elderly and older adult people in the population structure of almost all developed countries. It should also be noted that over the past 60 years the average expectation of life has increased from 48 years (the early 1950s) to 68 years (the first decade of the 21st century). In the percentage ratio, the number of people over the age of 60 years old in 1950 was 8%; in 2015, this figure was 11% and, according to the experts' forecasts, in 2050 it will be 22%. Every year, the proportion of the elderly population increases by 2.6%. Since traumatism is a topical problem for the elderly population, the object of the study was to analyze the causes of prevalence of injuries among them for the purpose of timely adoption of organizational preventive measures. The content analysis of the available medical literature for the period of 1996-2016 was performed. The following was established: the prevalence of injuries among the elderly; the frequency of fractures of different parts of the skeleton; and the less effective treatment. The study raises the problems of attracting the attention of the public health organizers to the gerontological aspect of traumatology.

Keywords: socio-hygienic causes, traumatism, organization, preventive measures, elderly age.

INTRODUCTION

According to the All-Russian Population Census, Russia is not an exception as to the number of elderly and older adult people. In the general structure of the Russian Federation citizens, which is 146.5 million people, the share of the population aged 65 and above is 12.9% [1- 3]. As of January 1, 2016, 21.8% of all women were of 60 years old and above, and only 13.4% of the total male population belonged to the same age range [4].

Based on the fact that the number of elderly people will increase in the next few years, the number of injuries sustained by this category of citizens will also increase. Currently, the features of acute trauma in elderly and older adult patients are rather neglected. In the domestic and foreign literature there are only anecdotal publications devoted to the private issues of traumatism in elderly population. This problem becomes especially topical considering the fact that the population of Russia has a tendency to aging, i.e. every eighth resident of Russia is at the age of at least 65 years old [5]. Given that in our country a high percentage of people over 60 years old work, this problem also has an economic component. Over the past 10 years, the number of working pensioners in Russia had increased by 13.0%. According to the RAS, the number of working pensioners is 40.0%; about 90.0% of Russians work after retirement for three more years, and 60.0% – for 6 years [6].

It should be noted that the treatment of elderly and older adult people is more expensive due to the increase in duration of inpatient treatment. Thus, proceeding from the analysis of direct expenses for surgical treatment of this category of citizens through the example of several cities of the Moscow Region, the expenses come to 10.0% of the annual city budget [7].

Moreover, it should be noted that the outcome of injury in elderly and older adult people is much worse and the number of complications is much higher than in people of a younger age. In the USA and the EU countries, despite the fact that cost of the treatment and rehabilitation of one such patient with a proximal femur fracture varies from 28 to 40 thousand dollars, only 25.0% of the patients are fully recovered [8].

METHODS

In order to analyze the features of acute injury production and its course in elderly and older adult people, we have made a review of available scientific, medical and literary data. The content analysis of the available medical literature (reports, articles, abstracts, theses, publications and dissertations) for the period of 1996-2016 was applied.

RESULTS

The main causes contributing to the increase in the number of injuries in elderly and older adult people are home and road accidents [9]. The peak in the number of fractures occurs in women aged 55-64 years old and men aged 65-74 years old. The risk of fractures in men is 2 times lower. Only in the period from 85 to 90 years old the frequency ratio of fractures in both sexes approaches each other.

Among home accidents, the falling stands out in a separate group as the main source of damages in the elderly

and older adult people. According to the WHO, the annual incidence of falling in persons over the age of 65 is 30.0%, and among people over 75 years old this value is even higher. About 10% of fallings lead to severe injuries, 5% of which are fractures. Approximately 20-30% of fallen people sustain injuries that significantly impair their quality of life and by several times increase the risk of early death. Older adult people who have suffered at least one falling, have a 2-3 times higher probability of falling during the same year. The hospitalization of older adult people after falling occurs 5 times more often than after other injuries. Among people aged 65 years old and above, falling is the leading cause of death. Among women over the age of 55 years old and men at the age of 65 years old there is an exponential dependence of an increase in mortality and frequency of hospitalization with increasing age. Among women over the age of 55 years old, two-thirds had a fracture in their lives caused by falling, and all other cases were associated with osteoporotic changes in bone tissue. The increase in fracture frequency occurs, as a rule, in the age group of 40-60 years old. At this age in women in the USA the fractures against the background of osteoporosis become the most common pathology. The risk of fractures of this localization reaches 15.0%, which is close to the incidence of breast, endometrial and ovarian cancer combined. Osteoporotic changes in the skeleton of elderly and older adult people are mostly associated with the process of general body aging [10].

The largest group of all skeletal injuries in elderly and older adult patients is proximal femur fractures which, according to estimates of different authors, range from 15% to 45% of cases. In the Russian Federation, proximal femur fractures in persons over 50 years old against the background of osteoporosis put this pathology in the 4th place among all causes of disability and mortality. In the country, the incidence of cervical hip fractures has increased over the period of 2000-2014 from 58.8 to 136.3 per 100 thousand of population. In Russia, the number of fractures per 100 thousand of population has increased in two years (2010-2016) among men from 51.5 to 83.1 and among women from 50.8 to 84.4 per 100 thousand of population [11]. According to the forecasts, the further increase in the frequency of fractures of this localization is expected. This number of proximal injuries in elderly and older adult people, according to several domestic and foreign authors, is associated with such factors as an increase in the average expectation of life of the population, deterioration of the ecological state of the life environment and adverse socio-hygienic conditions. Most of patients with such fractures need hospitalization into in-patient hospitals and can occupy up to 68% of the bed capacity of specialized trauma and orthopaedic units. The average length of stay in medical organizations of such patients is 30-35 days, which leads to high medical expenses. As a rule, almost all fractures of this area deprive the patient of his habitual way of life, suddenly locking him to the bed and thereby reducing the quality of life. All this takes place against the background of severe concomitant pathology of the respiratory and cardiovascular systems causing serious complications and further aggravating the patient's condition. In the Russian Federation, the mortality rate for subcapital fractures varies from 19.7% to 55.0%. Usually, the conservative treatment results in death in 40.0% of cases [12-13].

Another large group of injuries in elderly and older adult people includes the vertebral body fractures. According to the data of a number of authors, the frequency of the vertebral body fractures in individuals, who have reached the age of 50 years old, varies from 7.5% to 25.0%. The diagnosis and treatment of vertebral body fractures in elderly and older adult patients is a sufficiently great problem caused by the concomitant pathology, osteoporosis and unfavorable premorbid background [14]. By localization, as a rule, the greatest percentage of fractures falls onto the lower thoracic and lumbar spine, which is associated with the anatomical and physiological characteristics of these zones. Basing on these data, it can be accurately said that the vertebral body fractures occupy – if not particularly – one of the leading places among the prevailing injuries in the elderly people.

Among the fractures of the peripheral part of the skeleton, the distal radial epiphysis fractures are the most frequent damages [15]. Usually, the majority of injured people are women after 50 years old who have signs of osteopenia or osteoporosis. According to the estimates of various authors, the frequency of the distal radial epiphysis fractures varies from 10.0% to 33.0% of all skeletal injuries, while among the forearm injuries the fracture rate in this zone can reach 75.0%. In the USA, the frequency of these fractures is 150-200 thousand per year [16]. The proximal humerus fractures are in the second place in frequency among upper limbs bone fractures and in the third place after subcapital fractures and distal radial epiphysis in patients above 65 years old. They account for 4-5.0% of fractures. Despite the rather high incidence of these fractures, about 80-85.0% of such damages are the fractures without significant displacement of the fragments; they are not accompanied by complications and are treated conservatively. However, the treatment of severe fractures of this zone, accompanied by significant displacement of fragments, leads to satisfactory functional results only in 50.0% of cases [17-18].

DISCUSSION

The content analysis of the literature data has shown that the main causes assisting the occurrence of injuries in elderly and older adult people are home accidents. A significant part of home accidents is composed by the fallings. Another one important fact is that all this occurs against the background of osteoporotic changes in the bone tissue. The most socioeconomically significant fractures are proximal femoral fractures, spinal fractures, distal radial epiphysis fractures and proximal humerus fractures. Their significance is not only in the fact that they are the most common in this category of citizens, but also in the fact that the inpatient treatment of such patients is long-lasting and expensive, while the results are not always satisfactory, which is the main factor that reduces the quality of life of such patients and leads to their disability.

CONCLUSION

The provided review reveals the high relevance of the gerontological direction in traumatology, the features of causes and localization of fractures in the elderly. The lower efficiency of treatment of injuries in the elderly comparing with the young people necessitates further in-depth study of the latest and up-to-date methods of rehabilitation of elderly patients with injuries.

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