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Original Research Article

Self-reported consequences and healthcare costs of falls among elderly women

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ABSTRACT

Background and objective: Although the falls in elderly people lead to serious health consequences, the economic burden is underestimated. The aim of this study was to calculate the medical costs of fall consequences in elderly women.

Materials and methods: Women aged 65 years and older were interviewed by phone recording the consequences and healthcare procedures related to every fall sustained during the previous 12 months. The healthcare costs were estimated by calculating the sum of costs for all self-reported contacts with medical care providers: ambulance, emergency department, visits to family doctor and other specialists, hospitalisations, and rehabilitation.

Results: The study population consisted of 878 community-dwelling women (mean age 72.2 ± 4.8 years). Falls were reported by 310 (35.3%) women; one in three of them had fallen twice or more. Of all women who fell, 280 (90.3%) reported their fall resulted in an injury, and 77 (15.3%) falls led to bone fractures. Fear of falling was reported by 72.9% of women. Fall-related medical care was provided to 135 women (43.5% of those fallen), and 18 (5.8%) subjects were hospitalised, mostly for the fracture. The mean estimated healthcare cost was 254 EUR per patient receiving fall-related medical care, and 116 EUR per women fallen. The highest mean cost (1289 EUR) was estimated in falls resulted in hip fracture; the lowest (135 EUR), in nonfracture injury.

Conclusion: The data on the self-reported consequences of falls in elderly women showed a significant number of fall-related injuries and a high cost of healthcare.

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1. Introduction

Falls in the elderly is a major public health problem as they can lead to irreversible health, social, and psychological consequences, and a large economic burden. More than one-third of persons 65 years of age and older fall each year, and a half of falls are recurrent [1]. Falls are not only a risk factor for fractures but also for development of traumatic cerebral or visceral hemorrhagia, traumatic pain syndromes, functional limitations, dislocations, soft tissue injuries, excess healthcare costs, and increased mortality [2]. In the year 2000 in the USA, there was an estimated 10,300 fatal and 2.6 million nonfatal but medically treated fall-related injuries in individuals above the age of 65 years [3]. Of the fall-related injuries identified through the surveillance system in Florida, about 42% resulted in hospital admission and about 50% of fall injury events that occurred at home and required hospital admission resulted in a person being discharged to a nursing home [4].

As the population of elderly people is growing fall-related injuries affect a substantial number of older adults. It is likely that the overall numbers and costs of fall-related injury hospitalizations will continue to rise [5]. Several studies have been performed in different countries estimating the economic burden of falls [6–13]. It is difficult to compare the costs between countries due to differences in populations investigated, study methods, and expenses of medical care [14], but the magnitude of economic burden was demonstrated to be significant in all these publications. In Lithuania, research has been conducted investigating fall incidence, circumstances [15,16], and hospital costs of hip fractures [17], but the costs of fall-related injuries have not yet been estimated.

The aim of this study was to analyze the consequences of falls and to estimate fall-related health care costs in elderly women.

2. Materials and methods

2.1. Sample

The participants of this cross-sectional study were community-dwelling ambulatory women aged 65 years and older who during a period of 6 months consecutively visited the out-patient clinic National Osteoporosis Centre (Vilnius, Lithuania) for either a consultation with a geriatrist or for bone mineral density measurement. Demographic data, address and phone number were collected from patient records, and a phone interview was conducted by a specially trained interviewer for each participant. Women were informed about the aim of the study and the intended duration of the interview, and an informed verbal consent to participate was obtained for each participant. An ethical approval for the study was obtained from the Regional Ethics Committee.

2.2. Data on falls and their consequences

Collecting the data, the cognitive status of each participant was assessed using a 4-item mental test: asking the participant what her age and home address were what the day of the

week was, and what the name of the current President of Lithuania was. Persons who failed to provide correct answers to any of these questions were excluded from the study. Details about the fall were obtained by using a questionnaire prepared particularly for this study and containing 28 questions. The interview questionnaire covered socio-demographic characteristics, health status and medication used before falling, number of falls, consequences of each fall, and health care procedures performed because of falls. Physical health was assessed using a self-reported number of medical conditions as well as names and number of currently used medications.

The participants self-reported on falls suffered within the previous year. Respondents were asked to describe the reason and location (indoors or outdoors) of every fall. Only the outcomes of falls from standing height were analyzed in our study. The fall occurring as a consequence of accident, excess alcohol intake, or overwhelming external force, was not included into our calculation. The questionnaire contained 3 items asking the participants if they had fallen in the previous month, the previous 6 months, and the previous 12 months. Then the details of every fall were recorded separately starting with the most recent fall. Respondents were asked to describe the cause and location of every fall. Data was not recorded if the fall occurred because of an accident, or if another person was involved. Women were also asked to describe all the injuries they have sustained because of falling. All the physical injuries, e.g. sprains, strains, contusions, abrasions, and fractures, as well as fear of falling were recorded. Then participants were asked about their contacts with primary and secondary care medical services: how many times they saw a family doctor or consultant. Those women who had been hospitalised as a consequence of falling were also asked about the length of their stay in the orthopaedic or neurologic, and/or in the rehabilitation department of the hospital. Finally, the participants were asked to describe any health care procedures performed at an out-patient clinic or emergency department and any medications that had been prescribed as a result of their fall.

2.3. Cost estimation

The analysis of the health care costs was based on self-reported contacts with health care providers. Estimated out-patient costs included these medical care services: ambulance, emergency department, out-patient visits to family doctor or other specialists, and out-patient rehabilitation. In-patient treatment costs were calculated by assigning an average cost of hospital stay including surgery, intensive care unit, medical staff, radiological and laboratory services, physiotherapy, medication, nursing care and meals, and also in-patient stay at a rehabilitation department. After all these costs were summed, the mean estimated cost was calculated for each participant and also in subgroups according to age group, type of health care received, and also the presence and type of fracture. The costs were calculated based on the reference price list of the State Patient Fund, using the Diagnosis Related Group codes according to the order No. V-1118 of the Minister of Health of the Republic of Lithuania approved on December 23, 2011. The mean cost of transportation to the hospital by

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