

Hospitalization of patients aged 65 and over in Poland - analysis of frequency and causes

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Abstract

Background. Today aging of societies is a common occurrence in many countries. The prognosis is that by 2030 twenty percent of populations of the developed countries will consist of senior citizens (age 65 and over - for the purpose of the study a term "the elderly" will further be used). This situation will have a great influence on how healthcare will be utilized. **Objective.** The purpose of study was an analysis of frequency and causes of hospitalization of patients age 65 and over in Polish population. **Methods.** Data comparison analysis presented by the National Health Fund (NHF) and the Central Statistical Office (CSO) regarding frequency and causes of hospitalization of the elderly patients in 2009. **Results.** In 2009 there were 7.2 million people in need of hospitalization of which 26.3% were the elderly, in the face of 13% of part in whole population. Among 2,109,987 hospitalized elderly patients 1,205,495 were women and 904,492 were men with significant statistical difference ($p < 0.0001$). The most frequent cause of hospitalization of the elderly patients was a cardiovascular disease followed by a cataract. Statistically women were hospitalized more frequent with broken hip and stroke and men with heart attacks, pneumonia, Chronic Obstructive Pulmonary Disease (COPD) and chronic kidney disease. **Conclusions.** In Poland, people aged 65 and over are hospitalized more often than the rest of population. The most frequent causes of hospitalization in elderly people are cardiovascular diseases. Elderly men are hospitalized more often than women. Osteoporotic femoral fractures are significant problem among elderly women. *Geriatria 2013; 7: 1-5.*

Keywords: osteoporosis, hospitalization, elderly patients

Today aging of societies is a common occurrence in many countries. The prognosis is that by 2030 twenty percent of populations of the developed countries will consist of senior citizens (age 65 and over – for the purpose of the study a term "the elderly" will further be used) [1]. According to the United Nations (UN) an aging society, in the demographic sense, is one in which the number of the elderly accounts for more than 7%. In Poland, 13% of the population accounts for the aging society. Consequently we are a demographically old society.

In 2009 there were 5,172,509 of the elderly: 1,948,979 men and 3,223,530 women. The prognosis is that aging will be, in particular, rapid after 2020 [1]. Currently in Poland on average women live 79.8 years and men 71.4 years. The 8.7-year gap between men and women is the most noticeable since the difference is much smaller in other European countries. The high death rate among men mainly due to cardiovascular

disease is partly caused by lesser effectiveness of prolific programs. Based on the multi-center research it was shown that the most common factors of the risk of occurrence of cardiovascular disease in Poland are dyslipidemia and obesity [2].

It is estimated that 80% of the aging society has one of the two illnesses [1]. Along with the aging it is more common to find diseases rarely occurring in younger group ages such as cataract and osteoporotic femoral fractures [3-5].

Currently a group of the elderly patients are reinforced by baby-boomers of the fifties of the past century. Simultaneously a life expectancy is prolonged. This situation will have a great influence on how healthcare will be utilized. Therefore a careful analysis of the current situation how patients utilize healthcare is so significant. The biggest part of healthcare cost is hospitalization and the elderly use it the most [4,6,7]. Prolonged hospital stays generate more cost than emer-

gency care. Hospital stay is a traumatic experience for elderly patients. Burdened with the high rate of death [8]. During the hospitalization the co-existing health problems often worsen, especially dementia [9,10]. The elderly patients' hospital stays are at risk of being extended [10]. It is a result of both complications and difficulties in taking care of patients. Patients are often unable to live independently which results in ending up at nursing homes [11,12].

Objective

The purpose of study was an analysis of frequency and causes of hospitalization of patients age 65 and over in Polish population.

Material and methods

Data comparison analysis presented by the National Health Fund (NHF) and the Main Statistical Bureau (MSB) regarding frequency and causes of hospitalization of the elderly patients in 2009.

• Statistical analysis

The analysis focused on hospitalization rates and the differences between male and female patients. Chi-square tests were used to compare quantitative data. Chi-square tests were used to compare hospitalization rates in female and male patients. All tests were analysed at the significance $\alpha = 0.05$, and analyses were performed using STATISTICA v.8.0 (StatSoft Inc, <http://www.statsoft.com>).

Results

In 2009, 26,312,288 people utilized healthcare financed by National Health Fund (NHF). That stands for 70% of the insured population that accounts for 37,406,740 people. With aging, the frequency of using healthcare increases. From the age of 65 healthcare was used by 90% of insured population. In 2009 there were 7.2 million people in need of hospitalization of which 26.3% were the elderly, in the face of 13% of part in whole population. For 100 thousand women of age of 65 and over 44,000 were hospitalized, in comparison with 57,000 men.

Table 1. Causes of hospitalization of patients age 65 and over in Poland.

	hospitalizations (men)	% of hospi- talizations in men	hospi- taliza- tions (women)	% hospi- taliza- tions in women	p-value	total	% hospi- taliza- tions
CVD	169764	18.8%	232032	19.2%	$p < 0.0001$	401796	19.0%
MI	24093	2.7%	22686	1.9%	$p < 0.0001$	46779	2.2%
cataract	39185	4.3%	56184	4.7%	$p < 0.0001$	95369	4.5%
femoral fracture	6043	0.7%	20354	1.7%	$p < 0.0001$	26397	1.3%
pneumonia	11239	1.2%	11477	1.0%	$p < 0.0001$	22716	1.1%
COPD	23973	2.7%	9157	0.8%	$p < 0.0001$	33130	1.6%
stroke	23255	2.6%	45485	3.8%	$p < 0.0001$	68740	3.3%
CKD	10771	1.2%	8534	0.7%	$p < 0.0001$	19305	0.9%
prostate dise- ases	2722	0.3%	-	0.0%	-	2722	0.1%
breast diseases		0.0%	5665	0.5%	-	5665	0.3%
hospitalizations total	904492	100.0%	1205495	100.0%	-	2109987	100.0%
hospitalizations total/population		46.4%		37.4%	$p < 0.0001$		40.8%
population	1 948 979		3 223 530		-	5 172 509	

CVD cardio-vascular diseases

MI myocardial infarct

COPD chronic obstructive pulmonary disease

CKD chronic kidney disease

Among 2,109,987 hospitalized elderly patients 1,205,495 were women and 904,492 were men with significant statistical difference ($p < 0.0001$).

The most frequent cause of hospitalization of the elderly patients was a cardiovascular disease followed by a cataract. Statistically women were hospitalized more frequent with broken hip and stroke and men with heart attacks, pneumonia, Chronic Obstructive Pulmonary Disease (COPD) and chronic kidney disease (CKD).

In the emergency cases there were 2.9 million people helped and 37% accounted for the elderly. The number of people treated in emergency rooms (ER) in stationary mode accounted for 106,500, of which 38.6% were the elderly of all hospitalized emergency room patients. In ambulatory mode healthcare was used by 4.3 million people, of which 19.6% were the elderly.

Discussion

The elderly patients more often than other age group use healthcare, especially hospitalization. This is not a unique situation for Poland. It actually is a common state in other countries. In the USA the elderly group accounts for 13% of population, of which 37% are hospitalized [7]. The similar situation is in Australia and the Great Britain. It is estimated that 50% of hospital days are occupied by the elderly [6,7].

In the current demographic situation one has to realize that hospital medicine mainly deals with taking care of the elderly. Hospitalization of the elderly is a rather complicated matter. Aside from the direct cost the challenge is in therapeutic and diagnostic care. Co-existence of many diseases, mutual medicine interaction makes the decision process harder. Based on National Health Service (NHS) it was shown that 50% of hospitalized patients take more than 5 medications [10]. Therapeutics decisions are particularly hard to make for the elderly group. For years that group was marginalized or even excluded from random examinations thus there is a lack of reliable data regarding medical proceedings.

In Poland, the most frequent cause of hospitalization is a cardiovascular disease accounting for 18% of men and women hospitalization. A similar situation is in other countries. Aging in an independent way increases the risk of a cardiovascular disease. In Poland, after the elderly women are hospitalized less frequently than men and that difference is statistically significant, which is related to the length of harmful

risk factors on a human body and its interactions. Obesity, hyperlipidemia, high blood pressure, type 2 diabetes are the consequences of unhealthy style of living. The extended period of time of co-existence of those diseases leads to many complications, including a heart disease. A success of revascular procedures and a complicated pharmacotherapy save lives and it also decreased the rate of death of cardiovascular causes before age of 65. Patients receive extra years of living however, the consequence is the development of heart problems, which with time yields to decompensation. Paying attention to the frequency of risk factors and the effectiveness of treatment one can assume that there will be an increase in hospitalization due to the aforementioned cause.

The COPD occurs quite often in the Polish population, which is connected to smoking. Men are hospitalized more often due to aggravation of COPD. In the coming years one can expect more cases of women with COPD due to increase of smoking by women. The key to prevent COPD lies in anti-smoking campaign. Smoking is considered a disease therefore each year a smoker should be assigned with a status of its smoking stage. Medical doctors should encourage their patients to quit smoking all the time. Based on own research it was shown that patient's age has an influence on getting health promotion [13]. The elderly patients were asked about smoking and drinking alcohol less often. It was likely caused out of fear how a patient would take such questions. However, the negative effect of smoking and drinking alcohol is the same for all age groups. Recently published research proved advantages of quitting both even for lung cancer patients [14].

In our analysis we have found that men are hospitalized more often than women. This is not unique for Poland. Younger women use healthcare services more often than men and they are more frequent attendees in primary care [3,15,16]. So we can assume that women seek help earlier, when many health problems can be managed at the level of primary care.

In comparison to other countries in Poland pneumonia takes a small percentage for a cause of hospitalization of the elderly. It can be explained by particularity of the Polish primary healthcare that has a long tradition of parenteral antibioticotherapy performed at home. Many infections of respiratory tract are treated ambulatory.

Analyzing age of patients utilizing emergency services it is noted a big number of the elderly. Due to

their health status the elderly patients demand not only medical consultation but rather hospitalization [8].

The elderly female patients are more prone to hip fracture than men, there is a high probability of them having osteoporosis. A high frequency of fractures shows a lack of necessary public information about osteoporosis. Based on 2005 data there are about 165 hip fractures for 100,000 patients over 50 [17]. From 2009 data there are 603/100,000 fractures for the elderly women patients. The prognosis is that by 2050 hip fracture will increase by 240% for women, and 310% for men [18]. Osteoporosis fracture has a significant linkage with death rate (according to different authors from 24-48 months in span of 12 months) [17,19]. Only half of patients who survive are able to walk again. Osteoporosis fracture for the elderly women is the main cause of extended periods of stay at hospitals, in comparison with diabetes, heart attack, breast cancer and they are one of main causes of patients' immobility [18].

Most of the fractures happens from a standing position. A risk of fracture increases with every year and is higher for women then for men [18]. A decrease of a risk of fracture can be achieved by getting rid of environmental barriers, proper lighting, better movement coordination, having more comfortable shoes.

For men, statistically hip fracture is less frequent however, it is a significant reason for doctor's consultation. Unfortunately there is very little discussion about osteoporosis among men. Awareness of the risk is very low. Interestingly, in Sweden a risk of hip fracture for men over 50 is very close to a risk level of prostate cancer [20].

A lot of fractures could be avoided through prevention or early detection and use of effective pharmacotherapy. Pharmacotherapy can decrease a risk of fracture even by 70% [21,22].

Despite commonality of osteoporosis it does not rank high on the list of priorities in many countries. In Poland there is no screening research, there is no financial support to educate about osteoporosis. Treatment is funded and monthly cost for a patient is around 3 euros. Pharmacotherapy of biphosphonates is not too expensive, neither for a patient nor healthcare especially if it is compared to cost of fracture. An irony is that preventive measures are more expensive. Calcium and vitamin

D supplements are not refunded. Monthly cost is 5 euros. Currently osteoporosis treatment is available, it is worse, however, with its research. It is estimated that there are 4 densitometer for one million inhabitants [24]. It is one of the lowest results in Europe. A road to densitometer scan is long. A family doctor cannot refer a patient directly for a scan. A family doctor can, based on clinical risk factors, diagnose a disease and begin treatment but to do densitometer scan he has to send a patient to a specialty clinic.

Coming to conclusions being aware of aging societies, a role of the initial prevention becomes even more significant so that in twenty years the elderly will be in a better health condition.

A lot of hospitalizations of the elderly patients can be avoided by prevented measures, enhancement of activities with the primary healthcare, home health support, co-operation of family doctors, nurses and patients' families. As osteoporosis is very common among elderly people, active search of patients at a risk of developing osteoporosis, having densitometry screening, inclusion of effective pharmacotherapy is necessary to decrease the number of hip fractures.

Conclusion

In Poland, people aged 65 and over are hospitalized more often than the rest of population.

The most frequent causes of hospitalization in elderly people are cardiovascular diseases.

Elderly men are hospitalized more often than women.

Osteoporotic femoral fractures are significant problem among elderly women.

Conflict of interest

None

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