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Economic aspect of treatment in geriatrics

Abstract

Introduction. There are few publications related to the economic analysis of the cost of care and treatment of geriatric patients as compared with other fields of medicine. Aging of the population, especially in highly civilized countries is inevitable. Cost index is used in the literature to analyse the utility costs. They reflect the so-called cost-effectiveness of medical procedures with the estimated remaining number of years adjusted quality of life.

Aim. Economic evaluation of treatment in geriatrics. Rating demographic and economic situation in Poland on the basis of statistical data.

Material and methods. PubMed database was searched through and the base of Polish Central Statistical Office (CSO) was used. Qualified articles on the economic efficiency of the treatment of older people in terms of coexistence of multi morbidity were used for the analysis. Also, the existing legal acts and publications of the Polish National Health Fund, the reports from the Supreme Chamber of Control, data from the CSO, the Ministry of Health and Social Insurance Office were taken into account. Statistical analyses were performed basing on data from the CSO.

Conclusions. Multiple morbidities are usually correlated with a significant increase in the use of resources, as it "multiplies" the costs of health and social care. The incidence of comorbidities has increased due to the effectiveness of treatment of chronic diseases, such as cancer, together with the increasing age of the patients. So there is a need for a system of health and social care, which will take into account the economics, and which will evolve and follow the problems that emerge. First of all, the authors recognize the need to create a properly equipped hospital wards and geriatric clinic. It is also important to take into account the cost-incurrence of geriatric treatment so that the provider would have the ability to optimally treat patients comprehensively and not only their singular particular diseases.

Keywords: geriatrics, comprehensive geriatric assessment (CGA), economy, multiple morbidities, treatment, calculation, costs.

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INTRODUCTION

There are currently no areas not affected by economic accounts. Any activity, including medicine, is based on economy, conscious needs, distribution and consumption of goods and allocation of resources. Economics is a science about management and its effects. The main objective of management is the harmonious satisfaction of human needs. Health economics is the science which looks into the various determinants of health, especially the influence of the health protection and healthcare systems, the actions of healthcare providers, payers and regulatory bodies, and the behavior of patients [1]. The limited resources combined with unlimited demand remain the basic economic problem. This phenomenon is especially notable in health services, especially in the geriatrics and the treatment of chronic age-related diseases. The increase of social expectations, and thus the demand for health services, and aging population are global phenomena, which pose a challenge but also an opportunity for optimizing health economics in geriatrics [2].

Geriatrics is a branch of medicine devoted to the comprehensive health care provided to the elderly. The aim of this specialty includes the promotion of health and treatment of the elderly, as well as the prevention and treatment of diseases and disabilities. There is no set age limit for the patients to be under the care of a geriatrician doctor. The decision depends on the individual patient's needs and the availability of specialists. It is, however, widely accepted that the age threshold is above 60.

Geriatrics differs from the standard approach to an adult person, as it focuses on the unique needs of an elderly person. The physiology of the body deteriorates with increasing age and becomes inferior from the young adult organism, while dysfunctions of many organs and systems become apparent. The decrease in physiological reserves makes the elderly particularly prone to the development of certain diseases with a complicated course. Geriatrics distinguish between the normal effects of aging, and the consequences of diseases which they are capable of treating effectively (though often chronically).

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The current systems of financing health care (not only in Poland) are not conducive to opening and formation of geriatric hospital departments. Designed to account for only one single disease entity in a single patient, they discourage, and often event prevent the creation of new, medical units demanded by society. Multiple morbidities are connected with the increase in use of health care resources. There are more visits to specialists, more hospitalizations and expensive drugs [3].

AIM

Economic evaluation of treatment in geriatrics. Rating demographic and economic situation in Poland on the basis of statistical data.

MATERIAL AND METHODS

Qualified articles on the economic efficiency of the treatment of elderly people in terms of coexistence of comorbidities were used for the analysis. Also, the existing legal regulations and publications by the National Health Fund, the reports from the Supreme Chamber of Control, data from Central Statistical Office, and Social Insurance Office were taken into account. Statistical analyses were performed basing on the data of the Central Statistical Office using Microsoft Excel 2007 software.

RESULTS AND DISCUSSION

Elderly people are almost always burdened with a number of chronic diseases [4]. These most often include hypertension, chronic kidney disease, ischemic heart disease, congestive heart failure, diabetes, atrial fibrillation and flutter, cerebrovascular disease, thyroid disease, chronic obstructive pulmonary disease and diseases of the nervous system. Research shows that elderly people are treated for approximately 5 up to 8 chronic diseases requiring pharmacotherapy [5]. Patients of an older age require a special approach – e.g. additional care or special nutrition. They usually face emotional, neurological and social problems. After hospitalization, they often have nowhere to return to as their families do not have adequate housing and/or material conditions, or simply, despite the legal obligation, they are not willing to take care of them.

Aging of a certain population brings a lot of sociological and economic consequences. One of them is the increase in the number of medical services provided to the elderly. In Poland, according to data from the Central Statistical Office at the end of 2014 there were 115 geriatric ambulatory clinics and 38 geriatric hospital departments. Most clinics of this type (29) and departments (12) are located in Silesia province. It was noted with regret that no separate geriatric units were found in the regions of Mazovia, Pomerania and Warmia-Masuria [6]. (Table 1)

Also, there are only few specialized doctors geriatricians (135 in 2014), although over four years the situation improved slightly (in 2010 there were only 97). It is not only the authors of this work who recognize the need for a comprehensive, interdisciplinary care at the level of primary care. Projects and training courses for primary healthcare doctors and nurses, physiotherapists and community resource workers have been organized. Since the academic year 2016/17, mandatory studies in geriatrics have been introduced [7].

The World Health Organization (WHO) recommends the availability of 25 geriatric beds for 100 thousands residents (in Poland 2.5!, Table 2) [8]. In-patient units should be separate organizational entities, and should meet the standards as for premises, equipment, personnel and the number of residents living in the area. It is anticipated that there is a need for contracting a minimum of 400-500 month (4800-6000/year) outpatient medical consultations, and about 200/month (2400/year), medical home visits per 100 000 inhabitants. Predicted number of nursing home visits is about 500-600 per month (6000-7200 year) per 100 000 inhabitants [9].

At the end of 2014, the population of Poland amounted to 38.5 million. More than 8.5 million were people aged 60 or more (22.2%). Between 2004-2014 the number of elderly people increased by more than 2 million, while the biggest increase, of more than 1.16 million, was recorded for the group of 60-64 year olds. At the same time the number of 70-74 year olds decreased by 183 thousand. The share of people aged 60 and above in the general population has increased by 5.1 percentage points, i.e. from 17.1% in 2004 to 22.2% in 2014. [5]. (Figure 1)

TABLE 1. Geriatric wards according to the regions.

Name	Geriatric wards	Beds in geriatric wards	Patients treated at the geriatric hospital wards (including the cross-departmental movement)
	2014	2014	2014
	[-]	[-]	PERSONS
POLAND	38	853	21 787
ŁÓDŹ	2	21	619
LESSER POLAND	4	101	2 260
SILESIA	12	299	7 134
LUBLIN	4	103	2 869
SUBCARPATHIAN	3	58	1 617
PODLASKIE	1	25	715
ŚWIĘTOKRZYSKIE	2	51	1 249
LUBUSZ	1	25	1 063
GREATER POLAND	1	20	486
WEST POMERANIAN	1	6	266
LOWER SILESIAN	4	57	1 116
OPOLE	2	66	1 443
KUYAVIAN-POMERANIAN	1	21	950

Source: own work on the basis of the data from CSO

TABLE 2. Accessibility of geriatric health care.

WHO recommendation	Facts for Poland
25 geriatric beds/ 100 thousands of inhabitants	2.5 geriatric beds/ 100 thousands of inhabitants
25 places in day-care units/ 100 thousands	A few dozens of places in day-care units until 2015
1 Geriatric unit for 100 thousands inhabitants	0.2 Geriatric unit for 100 thousands inhabitants
	Around 300 geriatricians, out of which only around 200 works in accordance with their specialisation (there should be at least 760)

Source: own work on the basis of www.rpo.gov.pl

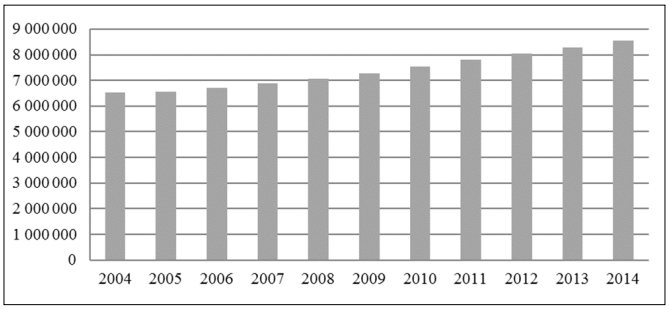

FIGURE 1. The increase in the number of people aged 60 and above in between 2004-2014.

Source: own work on the basis of the data from CSO.

Since 2009 the average number of persons benefitting from retirement or pension per one household has lowered (by 0.04) and this trend is decreasing. This may indicate that more people remain active (Figure 2)

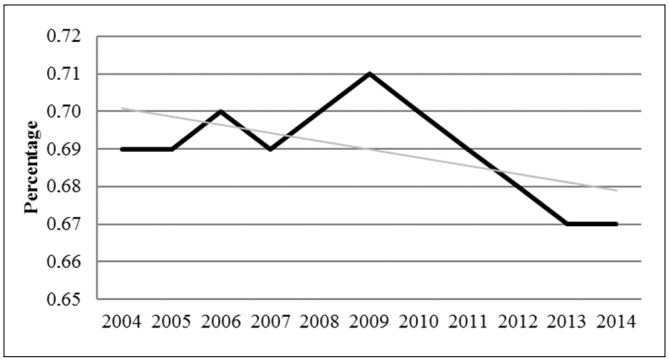

FIGURE 2. Percentage of people receiving pension or retirement per one household between 2004 and 2014.

Source: own work on the basis of the data from CSO.

According to CSO data average monthly spending on health per one person in a household currently amounts to about 54 PLN (app. 12 EUR). Usually, people aged over 80 take 6 tablets per day on average, 8 types of medications. The minimum cost of an average therapy on an outpatient basis is more than 130 PLN (app. 29 EUR per month, the maximum – more than 620 PLN (app. 139 EUR). Most often, patients above 80 years of age spend between 50 and 150 PLN (app. 11 and 33 EUR) per month on medicines, and the average percentage of the refund by the National Health Fund in the incurred overall costs of treatment is 51% [4]. According to the data published by the National Health Fund average payment of pension in 2015 amounted to 2,096.61 PLN (app. 471 EUR). However, one should take into account that this is an average value. Most pensioners receive lower pensions. Comparing the monthly cost of treatment with the amount of benefits received per month it is not difficult to conclude that a significant part of seniors' expenditure constitute spending on medicines and medical supplies. According to the law on pensions and retirement benefits a person above 75 years of age is entitled to an additional care allowance in the amount of 208.17 PLN (app. 46 EUR) and an attendance allowance in the amount of 153 PLN (app. 34 EUR) paid from the municipal office, as a partial cover of the expenses arising from the need to provide care and assistance of another person due to the inability to live independently [10]. People of the retirement age constitute 8% of the population benefiting from social assistance [6].

Current settlements with National Health Fund are unfavorable. Accounting for patients is based on the disease-related group (DRG) system. It wrongly assumes financing treatment of only one disease – the one the patient is referred to the clinic or ward with. There is no accountability for a patient suffering from multiple morbidities because in the DRG system there are no groups dedicated to the field of geriatrics. Treating a patient in accordance with the principles of the art of medicine, and not economics, the doctors expose hospitals to a loss [11]. According to the price list for 2016 provided by the Province Branch of National Health Fund in Wroclaw one settlement point of benefits in the field of geriatrics costs 9.20 PLN (app. 2 EUR).

Following the order of the President of the National Health Fund of 2011 an Comprehensive Geriatric Assessment (CGA) was introduced. It is a multidimensional, multidisciplinary diagnostic process conducted by a specialist in the field of geriatrics in order to identify health problems and patient care in elderly age, to optimize treatment and plan care, to improve the functioning and quality of life.

The range of procedures includes an extended functional enquiry, physical examination, neurological assessment, orthostatic hypotension, indicative assessment on vision and hearing, assessing physical function, gait and balance, and cognitive and emotional functions [10]. For the evaluation of the patient the following tests are used: the scale of activities in daily living (Katz ADL), the scale of assessment of complex activities of daily living (Lawton – IADL), the scale of evaluating patient's life skills (Barthel), the scale of assessment of balance and gait (Tinetti), the scale of assessment of the risk of falls (Tinetti), the scale of assessment of the risk of decubitus (Norton), the assessment of nutritional status (MNA), the scales of assessment of mental state (Folstein, Hachinski Ischemic Scale, Abbreviated Mental Test Score by Hodgkinson), the scales assessing emotional state (Geriatric Depression Scale by Yasavage, Depression Scale by Hamilton), the socio-environmental assessment. These tests allow to comprehensively assess the condition of the patient. They can detect physical, mental, emotional, visual, locomotion and physiological abnormalities. CGA gives a chance to reveal the real problems of the patient and improve the quality of life, for example, by means of adequate orthopedic, ophthalmic and ENT supply

CGA is the provision from the directory of services to sum which constitutes an annexed No. 1c to the order (provision No. 5.53.01.0001499). A CGA designed in that way is an instrument including a set of specialized laboratory tests together with specialized scales of assessment of functional, physical, psychological and mental status of a patient at the age of 60 or more with multiple morbidities. Currently the provision in the form of CGA has the value of 3 points. Settlement of a patient is possible once a calendar year. A benefit is provided to patients hospitalized in geriatric wards that meet the following criteria: at least 3 points on the VES-13 scale, at least 3 comorbidities in various body systems. The provision covers approx. 10 thousands patients a year. Unfortunately, the current valuation of this benefit does not cover the costs associated with its implementation. Given the comprehensive scope of the Comprehensive Geriatric Assessment, the time required to perform all the geriatric scales, the number of necessary laboratory tests, the value of Comprehensive Geriatric Assessment should be at least 10 points [12]. According to the assumptions of National Health Fund

Comprehensive Geriatric Assessment should bring the following results [13]:

- lowering the re-hospitalization index,
- reduction of polipharmacotherapy,
- early detection and treatment of health problems that allow for early therapy and prevention of the progression of disability.
- reduction of adverse drug reactions by proper selection of drugs at an elderly age, holistic approach to health problems conducive to increased patient satisfaction and quality of life, prolongation of life expectancy.

Financing of the provision includes [13]:

- an assessment of the scale of VES-13 (Vulnerable Elders Survey),
- expanded interview (including the caretaker) about fainting, falls, fluctuations in weight over time, sphincter dysfunction, current medications taken,
- physical examination extended by the elements of neurological assessment, evaluation of orthostatic hypotension, indicative assessment of vision and hearing,
- evaluating the following functions:
- physical (Barthel scale ADL and I-ADL)
- gait and balance (Tinetti scale, get up and go test)
- emotional (15-point Geriatric Depression Scale)
- cognitive (at least one of the short screening scales);
- making the necessary laboratory tests contained in the charter of comprehensive geriatric assessment,
- documentation of the abovementioned activities by filling out the card comprehensive geriatric assessment included in the history of the disease,
- placing recommendations for further proceedings in the discharge report.

In many cases, due to lack of geriatric wards, elderly people are currently treated in internal medicine units or other units, e.g. cardiac. They are treated by their family physicians or primary health care internists who do not have sufficient knowledge in the field of geriatrics and multiple morbidities of such individuals. Currently, more than a half of patients hospitalized in internal medicine wards are seniors. They often get there in serious condition, undiagnosed, often suffering from pneumonia, dehydration, heart failure or kidney disease, and without basic tests. There is no doubt that general practitioners care for these people diligently, but still the former lack the adequate geriatric training. Therefore, training courses in geriatrics for internists are organized and it is recommended to create separate geriatric at internal medicine wards, since cooperation between geriatrists and internists is essential.

Similar situation happens in many countries. Research in Singapore shows an increase in health care costs (SGD $ 2.265, EUR 1.5) and social care costs (SGD $ 3.177, EUR 2.0) with the increase of each additional disease entity [3]. Higher social and health costs are vastly associated with age. People aged over 75 years generate the growth of 79% of social costs and 48% of the cost of health care. At the age of 85, these costs already reach respectively 427% and 261%. The results of these studies indicate that age is a strong predictor of the overall costs.

Lehnert and others [14] conducted a literature review, which examined the relationship between the occurrence of chronic diseases and the use of health care and costs. They found that total spending on health care increased in a curvilinear manner, almost exponentially with the number of chronic conditions. So, they emphasize the impact of multiple morbidities in the healthcare system and society in general.

CONCLUSION

In 2014, there were 853 beds in geriatric wards and 115 geriatric clinics in Poland. Demand in this area increases from year to year due to the aging of the population. Hence, there is also an increasing demand for specialist doctors-geriatricians. Introduction of geriatrics as a subject in training of the future doctors seems to be an important step forward. Geriatric facilities are still missing in many cities and towns. Care for the elderly people is obviously expensive, especially taking into account multiple morbidities. However, taking the global perspective into account, professional and rational execution of medical procedures by staff trained in this field, and thus early diagnosis and treatment, it is surely cheaper than long-term hospitalization inevitably due to complications. The purpose of caring for the elderly is not so much striving to regain their former vitality and health, although this effect is desirable, but an improvement of quality of life by giving them the necessary assistance and care, without a concomitance of their incapacitation [15]. The development of geriatric medicine is currently reduced by the current underfunding of the settlement of hospitalization based on DRG groups. Besides, geriatric subwards within the structures of internal medicine departments also remain an organizational problem.

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