Pol. Ann. Med., 2010; 17(1): 112–122.

OVERVIEW PAPER

ENSURING REHABILITATION AND A FULL QUALITY OF LIFE FOR PATIENTS WITH CHRONIC NON-INFECTIOUS DISEASES

Aleksandras Kriščiūnas[1], Ireneusz M. Kowalski[2]

[1] *Department of Rehabilitation, Kaunas University of Medicine, Lithuania*
[2] *Department of Rehabilitation, Faculty of Medical Sciences, University of Warmia and Mazury in Olsztyn, Poland*

ABSTRACT

Introduction. Chronic non-infectious diseases (CNID), such as heart and vascular disorders, malignant tumors, diabetes mellitus, chronic obstructive lung disease, obesity, are one of the most topical health problems for Lithuanian and Polish residents. In solving the problems of CNID three areas of medicine (prophylactics, diagnosis and treatment, rehabilitation) are important, as the diseases that begin in childhood are diagnosed most often in the mature age, and their consequences are manifested in an older age.

Aim. The aim of this article was to discuss issues concerned with providing help for patients afflicted with CNID and devising an effective rehabilitation system for them.

Discussion. Efficiency of pharmacological and surgical treatments for patients with CNID is much lower than for patients with acute disorders. They progress slowly and exert damaging effects on patients' biopsychosocial functions. When the outcomes of a disease are manifested as impaired biopsychosocial functions, a life of full quality can only be ensured with the establishment of effective rehabilitation.

Conclusions. Rehabilitation should be long-term, complex and should involve elements of prophylactics. Investment in such a system is an investment in an inevitable future for each of us, and it always pays positive dividends.

Key words: chronic non-infectious diseases (CNID), rehabilitation, biopsychosocial functions.

Corresponding address: Aleksandras Kriščiūnas, Kauno Medicinos Universitetas, Eivenių 2, LT-50009 Kaunas, Lithuania; e-mail: reabilitacijos.klinika@kmuk.lt

Received 04.01.2010, accepted 03.03.2010

INTRODUCTION

Chronic non-infectious diseases (CNID), such as heart and vascular disorders, malignant tumors, diabetes mellitus, chronic obstructive lung disease, obesity, are one of the most topical health problems for Lithuanian and Polish residents [4, 12]. Currently, they tend to be of an epidemic nature (e.g. more than 20% of Lithuanian residents have hypertension, 56% of men and 49% of women are overweight or obese). CNID have become the major cause of disability and death in Belarus, Lithuania and Poland [7, 9, 12]. There is no hope for solving this problem through medical efforts alone. Although medicine is defined as a system of scientific knowledge and practical means dedicated to maintain and improve human health and working capacity, to prolong life, to recognize and treat diseases, implementation of these means depends not just upon medical professionals, but also upon political activists and society as a whole. In solving health problems, three areas of medical care are traditionally emphasized: prophylactics, diagnosis and treatment, and rehabilitation [2, 3, 5, 6, 8].

These areas are interrelated, but their importance is not the same with respect to different diseases and people of different ages. Undoubtedly, the significance of prophylactics is emphasized in newborns, infants, children, and people of a young age; early diagnosis and treatment – at the age of maturity; and rehabilitation – for the elderly. In solving the problem of CNID, all these areas of medical care are of equal importance, as the diseases that begin in childhood are diagnosed most often in the mature age, and their consequences are manifested in an older age [1, 5, 6, 8, 9, 12].

It is well known that the incidence of CNID is determined by heredity, lifestyle, physical and social surroundings, and quality of health service. In many countries, including Lithuania and Poland, much attention is paid to health education, primary and secondary prophylactics, early diagnosis and treatment of CNID [4, 12]. All of that yields fair results: the outcomes of CNID are manifested later, the average life expectancy is prolonged (currently, in some countries it already reaches 84–85 years, whereas in Lithuania just 70 years). Yet, rehabilitation problems in Lithuania still remain rather neglected, not enough attention is paid to these issues by both, medical professionals and governmental health policy makers.

AIM

The aim of this article is to discuss issues concerning providing help for patients with CNID and devising effective rehabilitation for them.

DISCUSSION

Life expectancy is probably the most important indicator of the health condition of the inhabitants of a country. Nonetheless, the other indicator of health is currently becoming more important – healthy life expectancy. It shows the length of time a person lives without disorders and their consequences. At present, the healthy life

expectancy in developed countries reaches 55 years. Thus, a person striving to live a healthy life may avoid CNID for a long time. However, unfavorable environmental factors (unhealthy diet, stress, noise; air, water and soil pollution; unsatisfactory working conditions, etc.) result in people falling ill with some chronic disease when they are 55–60 years of age. In cases of unfavorable environmental factors or improper lifestyle, people fall ill much earlier. So, the question arises: what should be done with these people, who are late to be told about prophylactics and the timely diagnosis of diseases?

It is very misleading when chronic diseases are not manifested for a long time and do not affect the full quality of life, especially in the absence of physical or psychological stress. From the point of view of health, such a situation decreases personal awareness and creates the illusion that these people are healthy and face no dangers to their health. But with time, the diseases progress slowly and ultimately exert damaging effects on patients' biopsychosocial functions: initially on working capability, later on the sense of direction in space, sense of time, of oneself, as well as on sight, vision, personal care, sexual function, ability to be socially active and engaged in meaningful activities. The disaster often occurs unexpectedly: stroke, myocardial infarction or cancer emerge like a thunderbolt. Although it had been thought that decades of good health remained, the individual suddenly becomes disabled.

We have to admit that the efficacy of pharmacological and surgical treatments for patients with CNID is much lower than for patients with acute disorders. Generally even applying the up-to-date treatment measures, aimed at restoring the disturbed human biopsychosocial functions, is unsuccessful. Treatment most often aims at eliminating the symptoms and signs of disease (heart failure, general weakness, arrhythmias, etc.), normalization of specific physiological indicators (blood pressure, pulse rate, heart beats, glucose and cholesterol levels in blood, etc.), surgical revascularization or removal of the tumor. Consequently, the imperative to treat not just an organ or systems of organs and not just the disease but rather the individual is quite often neglected [2, 3, 5, 6, 8, 9]. Life quality of patients with CNID is limited not only by the troubles caused by the disease, but also by the abundant usage of drugs, drug intolerance and adverse reactions (allergies, digestion disorders, etc.), and frequently by the uncertainty of future possibilities. People suffering from limited physical activity, brought on by a disease, are at risk of infections of the respiratory, urinary or other systems; bedsores, faster progression of other chronic illnesses such as osteoporosis, osteochondrosis, changes in the brain, often disturbed self-esteem, isolation, the emerging feeling of shame and guilt, and depression resulting from reduced possibilities of activity. It is estimated that people with disturbed social functions 2–3 times more often use alcoholic drinks, narcotic drugs, and are more often prone to suicide. CNID become a pressing, current problem as with an aging population

the number of people with various illnesses also increases, and the fact that these diseases are manifested at an older age is no longer just a medical, social or economic issue, but also a moral one. Because of the emigration of younger people, the lack of care for the elderly patients, as well as necessary medical, social and economical assistance are becoming a pressing problem [2, 3, 5, 6, 8, 9, 12].

Often people afflicted with CNID address alternative medicine, parapsychologists or even quack doctors, as traditional medicine does not seem to meet their expectations [10]. It is admitted that the traditional medical care model is clearly insufficient for people with CNID. Because of the damage caused to their biopsychosocial functions, traditional medical care does not cover all areas of assistance required by such patients.

The WHO, with membership of 193 countries, suggested the introduction of a biopsychosocial health care model. According to this model, when assistance is delivered to the ill, assessment involves not only the causes of health disorders, but also concerns the outcomes that can be reduced through environmental adjustment for the patient, application of technical rehabilitation means and the influencing of the patient's behavior. With that purpose in mind, *The international classification of functioning, disability and health* was developed by the WHO in 2001 [10]*.

The classification aims to:

- provide a scientific basis for understanding and studying health and health-related conditions, outcomes and determinants;
- establish a common language for describing health and health-related conditions in order to improve communication between different users, such as health care workers, researchers, policy-makers and the public, including people with disabilities;
- enable comparison of data across countries, health care disciplines, services and time;
- provide a systematic coding scheme for health information systems [10].

This classification supplements *The international statistical classification of diseases and related health problems, tenth revision,* 1992–1994*),* originally in use for more than a century, in which the causes of diseases are named, but the consequences to a specific individual are not presented. *The international classification of functioning, disability and health* (known more commonly as ICF) provides a new approach for the outcomes of diseases and trauma, which are estimated by three aspects, including the factors of environment and personality (Fig. 1).

* This classification was translated into Lithuanian under the initiative of the Department for the Affairs of the Disabled at the Ministry of Social Security and Labor (the scientific editor was Professor Aleksandras Kriščiūnas).

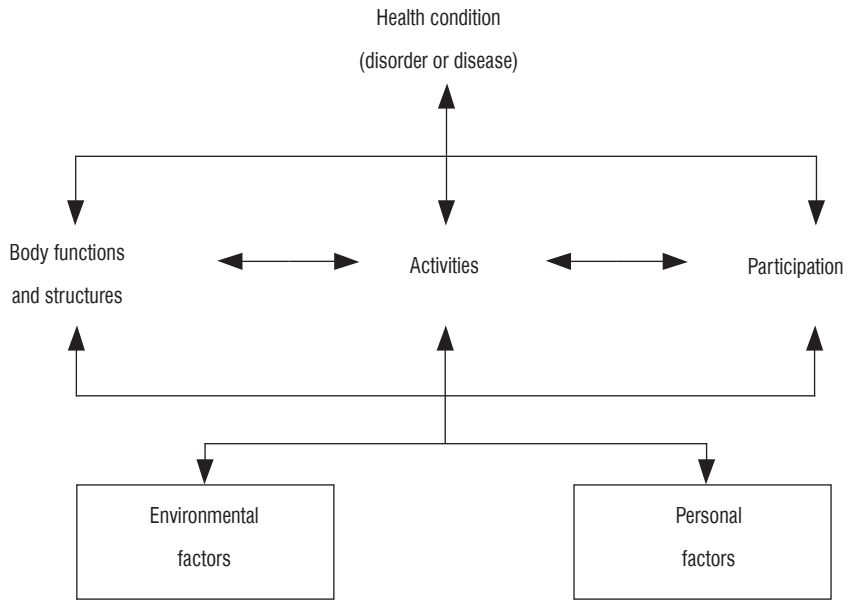

Fig. 1. Interactions between the components of ICF

It determines the following issues:
- functional and structural disorders of the body (disturbed activity of the heart, brain, etc.);
- activity disorders of the individual (not capable of walking, carrying, lifting, performing personal care activities, etc.);
- participation disorders of the individual (not capable of working, participating in social life, etc.).

This classification emphasizes the individuality of the sick person and the environment, and highlights not only the symptoms of the disease, but also the disturbed activities and social capabilities of the person [10].

It is of high importance that this classification indicates five groups of environmental factors that can aggravate or facilitate the outcomes of a disease. They are as follows:
- products and technology (any product, instrument, equipment or technical system adjusted or specially produced to improve the functioning of an ill person);
- natural environment and man-made changes to the environment (specific features of the terrain, e.g. climate, mountains, hills, dams, social infrastructure, stairs);
- support and relationships (family, friends, strangers, health care workers);
- attitudes (local customs, values, norms, attitude to the disabled);

– services, systems and policies (provided by the community, regional or national governmental and non-governmental organizations) [10].

This classification also gives recommendations for considering personal factors such as: age, sex, education, lifestyle. It emphasizes the biopsychosocial approach in assisting seriously ill patients. Implementation of a biopsychosocial approach into practice is possible only with the establishment of an effective rehabilitation system for seriously ill patients and the disabled (Fig. 2).

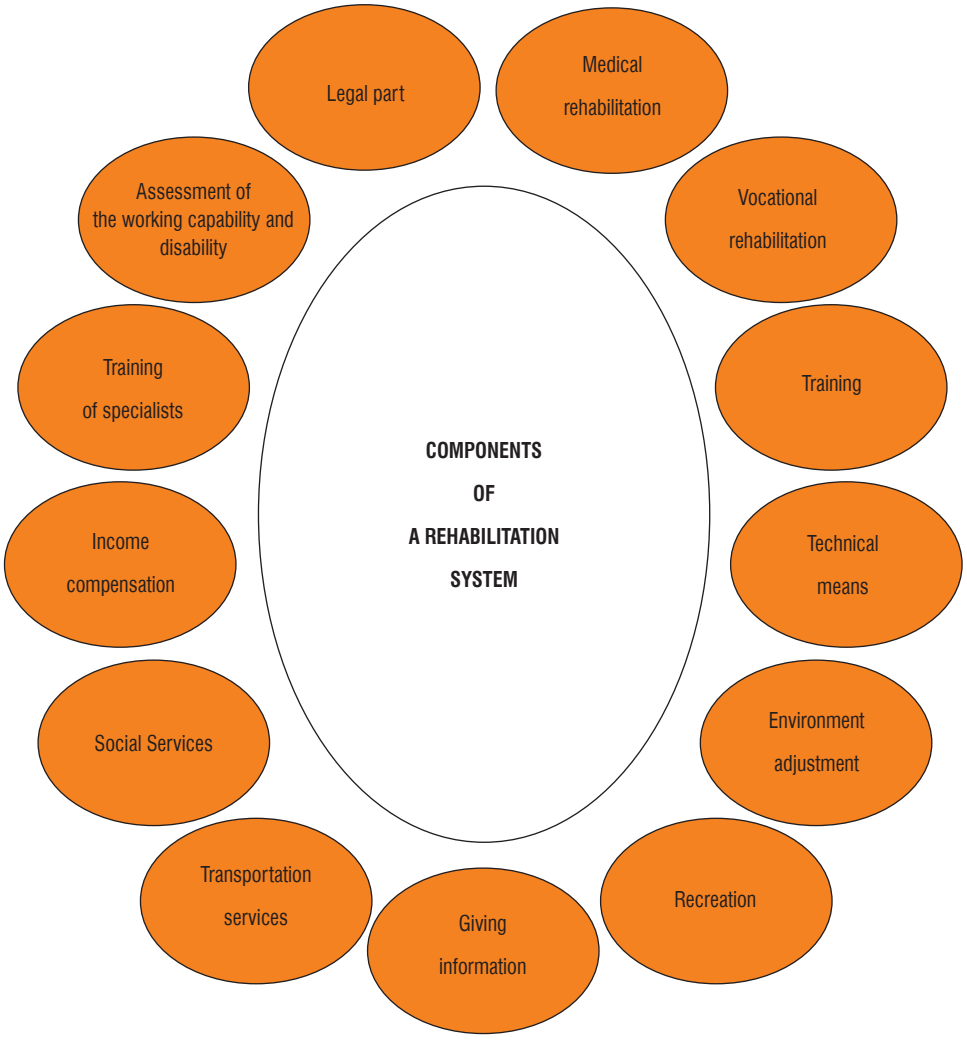

Fig. 2. Components of a rehabilitation system

Legal part (legislation regulating the work of the system). *Law on the social integration of the disabled* of the Republic of Lithuania, *National programme for social integration of the disabled into society for 2003–2012* were passed in Lithuania, but their implementation is being delayed because of the shortage of funding.

Medical rehabilitation. It is to be developed in the inpatient and outpatient institutions, health spas and home facilities. Much has been done in this field. Unfortunately, only a few patients in need of medical rehabilitation are able to access it yet. Rehabilitation institutions lack up-to-date rehabilitation equipment. A home-based Lithuanian rehabilitation system for seriously ill patients and the disabled is still lacking.

Vocational rehabilitation. It takes its first steps in Lithuania. Present vocational rehabilitation centers can provide vocational rehabilitation services (aiming at retrieving lost working skills by restoring, exercising and training) for only a few of the disabled. In comparison with the average rate in European Union countries, the employment rate of the disabled in Lithuania is 2–3 times lower.

Training. Participation in significant activities adequate to their status of health, positively influences health condition of people with CNID, improves their self-esteem and allows them to integrate into society. Their specific needs are determined not only by the nature of disability, but also by their social group (i.e. children, the elderly, women, socially supported individuals). Training (abilitation) and education of children with CNID are an important part of the rehabilitation system.

Technical rehabilitation aids. About 40% of the inhabitants in developed countries use technical rehabilitation aids (not to mention spectacles used by nearly 100% of elderly people), in comparison to only 17% of the Lithuanian population. It is necessary to increase the usage of both, individual technical rehabilitation aids (for personal care, mobility) and public technical rehabilitation means and aids (special transportation, wheelchairs, supports, props, rails and other equipment for individuals with mobility difficulties, special telephones, sound and light alarm systems). Usage of technical rehabilitation aids in Lithuania is limited by their shortage (especially of high-tech equipment), plain appearance, size, weight, short-time fitness, increased breakability, lack of a repair service for the fixing of broken items and people's lack of motivation.

Environmental adjustment. This is especially important for elderly people at risk of falling and tumbling because of disturbed cerebral circulation. Prevention involves proper street lighting, floor coating, elimination of stairs, adjusted bathroom and toilet equipment, etc.

Recreation. Recreation of the disabled, i.e. recovery of strength, health, joy of life, *raison d'être* and the conception of enjoyment in life, is an important part of the rehabilitation system. It liberates a person from stigmatization and induces his creativity. If a person is to be involved more actively in life, an environment is to

be adjusted so that the individual could rest, relax, or sometimes stay alone. This can be achieved via cultural events, sports, religion. The work of governmental and non-governmental organizations is especially important in this field. Inability of spending free time usefully, and ensuing lowered quality of life are causative for the emergence of many social problems (alcoholizm, drug addiction, suicides, crimes). Leisure activities like: watching television, playing computer games and similar free time activities are supposed to be problematic for such patients as they are connected with psychological stress, hypokinesia (diminished motor function), hypodynamia (decreased muscular strength), but nevertheless such activities are most often suggested to them [12].

Communication. As we have already mentioned, vision, hearing, attention and comprehension are often impaired in patients with CNID. Therefore, it should be accounted for while communicating with such patients. In cases of written information, sufficient illumination and size of letters are necessary, whereas when verbal information is given, accessory vocal interference is to be eliminated by turning down a radio, television, avoiding conversations at the same time with other people, etc. Elderly people often do not comprehend information communicated to them, but they try not to disclose that fact. This is why 50% of the elderly take drugs improperly. The Patient Health Literacy Investigation has revealed that a large number of Lithuanian inhabitants do not know the main risk factors for CNID [13].

Transportation system services. It is very important that transport, especially the public one, is to be adjusted to the needs of the individuals with impaired mobility and coordination (low boarding, holders and the like).

Social care and social services. Human existence is a social process. It is understood as a constant interaction with other individuals. When disease occurs, the social role of an individual and social relationships change. Ill people often find it difficult to express their wishes, as physical and intellectual problems hinder them from imagining or recognizing their possibilities. Frequently patients resign themselves to the role of dependants. Therefore, it is important to estimate special needs of daily and personal life, training, working activity and public life for the patients and provide adequate assistance for them.

Lost income compensation. Financial support must be assigned to warrant personal material conditions (social allowance, compensation for accommodation, heating, hot and cold water supply, etc.), nursing, care and aid, transportation and other expenses. This is a very important part of the rehabilitation system as it helps the person to establish a stable self-esteem. With the financial situation secured, a person becomes "the captain of his own ship".

Training of specialists. Proper adjustment of versatile rehabilitation means performed by specialists working in this field demands not only a thorough knowledge of biomedical sciences, but also of educational issues, psychology, sociology

and practical skills necessary for working with the disabled. In Lithuania, physical medicine and rehabilitation doctors, nurses (bachelors, masters), social workers (bachelors, masters), kinesitherapists (bachelors, masters), speech therapists, ergotherapists (bachelors, masters), orthotists, public health specialists (bachelors, masters) are adequately trained to work with the disabled. We have to admit with regret, however, that the number of these specialists is several times lower than in the older European countries.

Working capability and disability assessment. In disability assessment of seriously ill patients, it is extremely important not to focus on what they are not capable of doing, but rather on what they are capable of doing, to avoid stigmatization and to enhance individual self-esteem. This is done by the Working Capability and Disability Assessment Office on the basis of documentation presented by attending physicians as well as health, vocational rehabilitation and other specialists. However, frequently, individual's disability is estimated without utilizing all the possibilities for rehabilitation, with much subjectivity involved. In unclear cases there are no possibilities to perform a thorough investigation in tertiary health care institutions. In cases when disability is estimated for seriously ill patients, it is important that a personal rehabilitation program is to be arranged, with the aim to maximally enhance the functional activity of the person. Family physicians should be responsible for the implementation of such a program, and the control should be performed by the Working Capability and Disability Assessment Office.

Rehabilitation of patients with CNID will be effective, if it is complex, all the elements of the system are developed equally, rehabilitation assistance is provided by a team of professionals, which often consists of 10 or more specialists (physical medicine and rehabilitation doctor, nurse, kinesitherapist, ergotherapist, psychologist, speech therapist performing speech correction, specialist on applying technical rehabilitation aids, social worker, etc.) [1, 3, 4, 7, 9, 10, 12, 13].

Such an assistance to the patient is quite expensive, but its economic benefits are undoubted:

- seriously ill patients' hospitalization period shortens;
- severe disease complications (bedsores, contractures, thromboembolism, etc.) are avoided;
- number of used drugs decreases;
- psychological climate in the family improves;
- the extent of necessary nursing decreases;
- patient's independence and quality of life increase;
- some of the rehabilitees return to working activities;
- length of life is extended;
- exacerbations of the disease and frequency of repeated hospitalizations decrease.

It is calculated that one currency unit put into the rehabilitation system pays divi-

dends ninefold. Therefore, insurance companies of civilized countries support the establishment of such a system.

In Lithuania, only 3% of the compulsory health insurance fund means are allotted to rehabilitation (financing fund for 2009 comprised 4.48 billion litas, whereas the allotted sum for rehabilitation amounted to 148 million litas). Rehabilitation services are provided for 80 000 patients, the need being 2- or even 3-fold higher. Valuation of rehabilitation services is unreasonably low, therefore the secondary disability is not prevented. Seriously ill patients become disabled not because of disease or trauma, but because proper rehabilitation was not provided for them in time, resulting in complications which could have been avoided by applying the appropriate rehabilitation means.

Establishment of a complex rehabilitation system for seriously ill patients and the disabled is a great challenge. It is to be understood as a versatile system of legal, medical, economic, organizational, etc., means, which helps people to regain their disturbed biopsychosocial functions, compensates them and adapts them to society.

It is well known that the financing of the health system faces ethical problems as the lack of funding forces the establishment of priorities. A shortage of resources and competition in this field leads to conflicts. Patients with chronic diseases often lose in this competition as they are mostly the elderly ones, their dysfunctions being chronic, changes irreversible and lasting all life long, and prolonged time is needed for their correction [1]. Frequently rehabilitation of such patients encounters "ageism", i.e. a false attitude that treatment of the elderly is expensive, not paying dividends, unattractive, etc. [1, 2, 5, 6, 9, 12].

CONCLUSIONS

To summarize, we wish to emphasize that in providing help for patients with CNID it is important to understand that:

1. Human existence is inevitably connected both with negative and positive environmental factors affecting health;
2. By choosing a proper lifestyle, individuals can influence their health noticeably and prolong the length of healthy life. Yet, unfortunately, a time comes when they will necessarily require help from people near them and from society;
3. When the outcomes of a disease are manifested as impaired biopsychosocial functions, a life of full quality can only be ensured through the establishment of effective rehabilitation. Investment in such a system is an investment in an inevitable future of each of us, and it always pays positive dividends.

REFERENCES

1. Albrecht G. L., Seelmann K. D., Bury M. (eds.): *Handbook of Disability Studies*. Sage Publications, Thousand Oaks, 2001.
2. van Baak M. A.: *Exercise and hypertension: facts and uncertainties*. Br. J. Sports Med., 1998; 32 (1): 6–10.
3. Brennan M. F.: *Exercise prescription for active seniors*. Phys. Sportsmed., 2002; 30 (2): 19.
4. Dėl valstybinės lėyinių neinfekcinių ligų profilaktikos 2008–2010 metų programos patvirtinimo [National programme for prevention of chronic non-infectious diseases in 2008–2010]. Valstybės žinios, 04 December 2008; No 139–5520.
5. Feine J. S., Lund J. P.: *An assessment of the efficacy of physical therapy and physical modalities for the control of chronic musculoskeletal pain*. Pain, 1997; 71 (1): 5–23.
6. Fitzsimmons A., Freundlich B., Bonner F.: *Osteoporosis and rehabilitation*. Crit. Rev. Phys. Rehabil. Med., 1997; 9 (3–4): 331–353.
7. Neįgalumo ir darbingumo nustatymo tarnybos 2007 metų pagrindiniai veiklos rodikliai [The Main Activity Indices of the Disability and Working Capacity Assessment Office: 2007]. Vilnius 2008.
8. Olivier F. L.: *Suggested guidelines for the use of exercise with adults in acute care setting*. Physiother. Can., 1998; 50 (2): 127–136.
9. Smychek V. B., Kowalski I. M., Abelskaya I. S., Mikhaylor A. N.: *The multistage system for sick and disabled people*. Post. Rehab., 2008; 22 (3): 43–46.
10. *The International Classification of Functioning, Disability, and Health.* WHO, Geneva 2001.
11. Wainapel S. F., Fost A. (eds.): *Alternative Medicine and Rehabilitation. A guide for Practitioners*. Demos Medical Publishing, New York 2003.
12. Wolska O., Zaborowska-Sapeta K., Kiebzak W., Kowalski I. M., Torres M. A. T.: *Seniors rehabilitation – clinical implications and therapy planning.* Pol. Ann. Med., 2009; 16 (1): 148–159.
13. Zagurskienė D.: *Pacientų sveikatos raštingumo vertinimas [Evaluation of the Patient Health Care Literacy]*. Doctoral dissertation. Kaunas 2009.