ISSN 0030-5987. Orthopaedics, traumatology and prosthetics. 2023. № 2

REHABILITATION

УДК 614.216:615.8](477)(045)

DOI: http://dx.doi.org/10.15674/0030-59872023277-83

Development of the rehabilitation system in Ukraine. Organizational aspects

O. M. Sitenko

Vashkivtsi Rehabilitation Hospital, Vashkivtsi. Ukraine

The war and Russian aggression against Ukraine require government and society long-term extraordinary efforts. It's not only in the field of the destroyed economy. The primary necessity is to restore a dignified life to every person affected by the war, military or civilian. The fate of each of us, our society, and our country in general will depend on efforts effectiveness in this direction. Objective. To develop and substantiate proposals for a systematic approach to the provision of medical rehabilitation assistance in the country. Results. The principles on which it is expedient to create a system of rehabilitation assistance in Ukraine have been formulated and substantiated. They are the principles of statehood, modernity, science, continuity, phasing and unified tactics, regionalism, specializations, self-rehabilitation. Each principle is briefly described, the experience of the world's leading countries is given. The state and society role in the rehabilitation process is noted. Proposals. Develop a strategy, concept and government program for creating a rehabilitation assistance system in Ukraine. Provide a construction and equipment of regional rehabilitation centers (RC) within the post-war country renovation program. It has to be used worldwide principles of new hospital's design and construction regarding the 200 inpatient beds in the unit. To locate RC outside of big cities, usually. Training of rehabilitation specialists should be provided in various levels medical educational institutions. Modified vehicles to manual control for disable people and training in its use. To prevent the liquidation of Ukrainian Research Prosthetics Institution. To transfer this institution functions and the property complex to Sytenko Institute of Spine and Joint Pathology National Ukrainian Academy of Medical Sciences. To transfer research medical rehabilitation organizer and executor functions to the National Ukrainian Academy of Medical Sciences, in generally.

Війна, розв'язана росією, потребує від держави та суспільства надзвичайних і довготривалих зусиль не лише в галузі зруйнованої економіки. Першочергова необхідність — повернути достойне життя кожній постраждалій від війни людині, військовій чи цивільній. Від ефективності зусиль у цьому напрямі залежатиме доля кожного з нас і країни та суспільства загалом. Мета. Розробити та обґрунтувати пропозиції щодо системного підходу до надання реабілітаційної допомоги в країні. Результати. Сформульовано й обґрунтовано принципи, на яких доцільно створювати в Україні систему реабілітаційної допомоги, а саме: державності; сучасності; науковості; наступності, етапності та єдиної тактики; регіональності; спеціалізації; самореабілітації. Стисло охарактеризовано кожен принцип, наведено досвід провідних країн світу. Зауважено на ролі держави та суспільства в реабілітаційному процесі. Пропозиції. Розробити стратегію, концепцію та державну програму створення системи реабілітаційної допомоги в Україні. Передбачити будівництво й оснащення регіональних реабілітаційних центрів (РЦ) у межах післявоєнного відновлення держави. Створити всеукраїнський і регіональні реєстри людей, які потребують реабілітаційної допомоги (дітей і дорослих). Під час проєктування та будівництва нових РЦ ураховувати світові принципи щодо кількості стаціонарних ліжок у 200 одиниць. Розміщувати РЦ, зазвичай, за межами великих міст. У медичних навчальних закладах різного ступеня запровадити підготовку спеціалістів із реабілітації. Розгорнути комплекс робіт із переобладнання транспортних засобів на ручне управління та навчання користуванню ним. Не допустити ліквідацію УкрНДІпротезування, а функції цього закладу та майновий комплекс передати ДУ «ІПХС ім. проф. М. І. Ситенка НАМН України». Функції організатора та виконавця наукових досліджень передати Національній академії медичних наук України. Ключові слова. Реабілітація, системний підхід, досвід інших країн, пропозиції.

Key words. Rehabilitation, systematic approach, experience of other countries, proposals

Introduction

The evolution of health care concepts has gradually assigned an increasingly important role to rehabilitation measures, and modern achievements in this field have become so significant that according to the WHO assessment, the actual treatment stage in the process of health restoration occupies 20 %, with 80 % assigned to rehabilitation stage. Further development of rehabilitation field is considered as a strategic direction in health care and the practice of many countries confirms this. In particular, there are 10 rehabilitation beds per 100,000 in peacetime in the US, and 15 in Israel. In the US, the number of veterans seeking rehabilitation only for post-traumatic stress disorder (PTSD) increased between 2004 and 2008 from 274,000 to 442,000. In our country in the past years, the situation with the level of rehabilitation work, in particular with the availability of specialized institutions, the level of their personnel and medical and technical support, etc., was much worse. There were few medical institutions in which the treatment process included rehabilitation measures, and scientific developments were mostly based on the initiatives of a few specialists.

In difficult war times, it became obvious to Ukrainian doctors that rehabilitation should become an integral part of state policy. From recent history, we know the tragic consequences of not providing full rehabilitation assistance to the soldiers of the Soviet army after the Second World and the Afghan wars, or to the US soldiers after the Vietnam war or to the civilian population in Serbia. The concern of the state and society for the fate of the injured soldiers and all citizens is an integral factor of the high moral and patriotic spirit in the country. In this context, the consequences of the war that Russia is waging against Ukraine become predictable, both in the case of timely development of the rehabilitation system, and in the case of delay in this work. Here it should be taken into account that the victims of this war are not only soldiers, but also the civilian population, especially women and children, who survived the harsh conditions of wartime.

Rehabilitation combined physical and rehabilitation medicine, physiology, bionics, orthopedics and prosthetics, psychology, psychotherapy, pedagogy, development of various medical and technical tools into a single multidisciplinary practice. A condition for achieving the goals of rehabilitation is also the constant updating and high-quality implementation of relevant social programs at all levels of the state system. Such multidisciplinary activity necessitates the exchange of knowledge, opinions, and suggestions between specialists of all the mentioned professions, which prompted the present study.

Purpose: to develop and justify proposals for a systemic approach to the provision of rehabilitation assistance in the country.

In our opinion, the creation of a system of rehabilitation assistance in Ukraine should be based on the principles of statehood; modernity; science; continuity, phasing and unified tactics; regionalism; specializations; self-rehabilitation. Let us briefly consider the essence of these principles, in addition to the principle of specialization. We will not dwell on the extremely voluminous issues of equipping rehabilitation centers (RC) with special equipment.

The principle of statehood

Creating conditions for restoring health, equal social and other opportunities for all citizens is one of the primary functions of the state. A comparison of the scale and structure of the problem brought about by the war with the existing legislative, material, technical and personnel base and other parameters that determine the ability to perform rehabilitation work in the war and post-war times indicates the need to urgently begin to develop a strategy, concept and state program of activities in this field. Moreover, the mentioned documents are a scientific product and they can be developed at a high-quality level only in a scientific way, not in a cabinet way, according to the principle of obviousness for officials. In this case, the laws of Ukraine and the Resolutions of the Cabinet of Ministers will have a systemic nature, unlike those adopted in the last two years. It is the scientific methods of planning that make it possible to determine with mathematical precision the phasing in the development of the system, ensure the effective use of funds (always limited) and other resources, and safeguard against corruption. We should also note that the very existence of comprehensively substantiated state strategies and plans is constantly in the field of attention of our foreign partners: they are determined by them regarding cooperation with us and the provision of assistance.

Currently, the state performs one of its functions — it provides sufficient funding for rehabilitation measures for each patient. Institutions of various forms of ownership quickly reacted to this. The participation of business structures in the deployment of the rehabilitation system can only be welcomed: they are the ones who respond quickly to the problem, and do their work energetically and at a modern level. Therefore, among those 300 institutions that have now received rehabilitation licenses, there are

almost 100 new prosthetic and orthopedic companies (a significant share also has this business motive in mind). It can be predicted that the quality of work of such institutions will not be high. The main reason is the lack of personnel in the entire list of professions. For example, the Ministry of Social Policy of Ukraine's misunderstanding of the complexity of such a stage of rehabilitation as prosthetic repair, placing this function far from medicine and science led to the fact that approximately 6–7 doctors worked in this system for 10,000 patients with disabilities (compare with 40 doctors in the system Ministry of Health of Ukraine). The situation with middle-level personnel is even worse: nurses and other specialists in the rehabilitation profile are needed many times more than doctors, but there is a complete lack of a training system for them. This is one of the characteristics of the state's neglect of the rehabilitation system. Even today, no medical college has been repurposed to train rehabilitators of various specialties, prosthetists, and psychologists.

Another destructive decision of the government is the liquidation of the Ukrainian Research Institute of Prosthetics and the transfer of its property to the State Property Fund of Ukraine, i.e. for sale. All employees are fired. This is how domestic science and clinical practice, which were developed by talented scientific teams in Kharkiv, which is saturated with specialized rehabilitation institutions, for a century and a half, is being destroyed. In this way, a scientific and clinical institution is liquidated, which, under the circumstances of mass injury of military and civilians, should have become an organizational and methodical center for the entire country, an institution in which assistance would be provided in the most difficult cases.

It follows from the foregoing that the creation and proper introduction into practice of the rehabilitation system will require a fairly wide list of measures, including the definition or creation of a state body that will be responsible for this area of state functions, organization of training of specialists on a state scale.

The principle of modernity

What is presented in this section is based on the generalization of data obtained as a result of familiarization with the work of modern RCs in Europe. In such institutions, not a single component in the rehabilitation process is neglected or simplified. Even under the pressure of some circumstances. From this postulate, the structure of the center, the purpose and adequacy of its office premises, the availability of equipment, and the preparedness of the staff are determined. In the RC, neither a bed nor a ward are the bridgeheads of rehabilitation, but functional services and the multifaceted purposeful activity of specialists together with the patient. And this approach determines the structure and equipment of such centers, as well as the program of patients' stay, which is significantly different from that of hospitals.

The RC is also entrusted with the function of being a regional methodical, educational and scientific base for medical, physical and social rehabilitation.

The directions of rehabilitation activities were developed gradually over decades of scientific and practical work and most often involve the following:

– traumatic damage to limbs;
– traumatic brain injury;
– damage to the spinal cord;
– post-stroke rehabilitation;
– rehabilitation of patients with diabetic foot;
– prosthetic repair after limb amputations;
– rehabilitation for driving a motor vehicle;
– rheumatological rehabilitation;
– pain clinic;
– neuropsychological diagnosis and treatment;
– mental rehabilitation;
– children's rehabilitation;
– oncological rehabilitation;
– professional rehabilitation.

Unlike hospitals, where the number of patients sometimes reaches several thousand, there are few super-large modern medical centers. The practice of all countries has proven that the optimal size of the hospital is up to 200 inpatient beds. The department of the day hospital and the outpatient clinic make it possible to optimally use the professional potential of the center's multidisciplinary team.

The main types of functional premises of the RC are as follows:

– wards for inpatients;
– premises for outpatient reception;
– premises for diagnostic equipment;
– treatment halls and rooms (physiotherapy, hydrotherapy, labor therapy with mental training, gyms, areas for art therapy, etc.);
– premises for feeding patients and staff;
– premises for leisure and relaxation of patients and their family members;
– areas for special types of rehabilitation activity;
– premises for academic and educational activities;
– administrative premises;
– auxiliary and technical premises;
– working and living quarters for staff;
– zones and landscaped areas around the center for active rehabilitation and independent training of patients.

In addition, there are premises for special types of rehabilitation activities: a medical greenhouse and a winter garden; rooms for treatment with the help of animals; for professional rehabilitation and adaptation; social reintegration, including the selection of free time programs (hobby training); art therapy center (music therapy, drama therapy, art therapy methods, dance therapy, etc.);

Principles of RC planning and construction comprise:

– accessibility of all premises for persons with disabilities of any degree;

– «home», not hospital interior in wards and some other premises;

– creating a feeling of patient's privacy space in wards and treatment rooms;

– functional convenience for the staff, the patient and his family members;

– allocation of large areas for treatment zones;

– the location of the RC in areas rich in nature: forests, hills, lakes, etc.

Usually, RCs are not founded within large cities, but at a short distance from them. For example, in the Czech Republic, the oldest RC in Europe is located on the outskirts of Kladruba (100 km from Prague). In this city, according to the decision of the local authorities, all architectural barriers were removed, which ensures total accessibility to all its infrastructure and transport and allows the patients of the RC to gain the experience of being in the settlement. Dozens of hectares of forest territory have also been allocated to the RC for recreational areas. A significant number of RCs in Europe have been created on the same principles.

Quite often, RC patients have damage of several functions, and therefore the rehabilitation process, in fact, is always multidisciplinary. For each individual aspect of health, the therapeutic intervention of a professional in this field is necessary, and the general rehabilitation tactics, determination of the potential for functional recovery, goals and time limits of the program are determined collegially. It is this organization of work that can lead a patient with severe health damage to the desired result.

It is known from foreign experience that in the 200-bed hospital, a multidisciplinary professional team includes:

– 30–35 doctors, including 20 rehabilitation doctors;

– up to 80 specialists at the level of bachelors with special training and nurses;

– 5–10 prosthetists-orthetists;

– up to 20 physiotherapists;

– 10–15 occupational therapists and professional rehabilitation consultants;

– up to 10 psychologists and neuropsychologists;

– 10 social workers;

– 3–4 special education teachers;

– sexologists;

– art therapists;

– up to 60 junior and support staff.

This staff composition and the corresponding equipment make it possible to organize the process of patients' stay in the hospital in such a way that 4–5 hours every day they are dealt with by specialists, and for another 5–6 hours they independently perform the given individual rehabilitation programs. The patient's usual physical fatigue at the end of the day and pleasant psychological fatigue are reliable indications of the correctness of the appointment and implementation of the rehabilitation process, and such intensity will ensure the best result. In addition, it will be an important component in establishing the psychological atmosphere in the RC as a whole.

Equipping the RC with equipment should correspond to its direction of activity and structure. The importance of urgently paying attention to this matter can be explained by just two examples in relation to two structural subdivisions of the RC, which are mandatory according to modern standards:

1. Today, our injured soldiers are practically not referred to foreign clinics for primary prosthetic repair. For any professional, the short-term effectiveness of these actions is obvious, and therefore they are nothing more than populism and a waste of the budget. Primary prosthetic repair must be carried out in one's own country. Therefore, creation of conditions for performing primary prosthetic and orthotic repair, purchase of necessary equipment and components is one of the priority tasks in the RC.

2. The presence of own vehicle with individually adapted manual controls is recognized as an indisputable condition for the rehabilitation of persons with limited mobility. The lack of one's own transport or the impossibility to personally drive it becomes a serious barrier to the acquisition of equal opportunities, integration into society and is not fully compensated in any other way. Therefore, on the basis of the RC, a complex of works should be carried out to assess the psychophysiological and biomechanical capacity of a person, determine the individual parameters of the manual control organs, and teach driving on special traffic simulators. During the patient's stay in the hospital, his car must be converted to manual control and he should be taught how to use it.

The principle of scientificity

The level of rehabilitation is provided by its scientific foundations and their development. Let us show the importance of scientific progress in this field using examples.

The practice of prosthetic repair indicates that the receiving socket of the prosthesis is the biggest problem. Throughout the history of this industry, no less time and resources have been spent on the search for its optimal forms and suitable materials, individual manufacturing technologies, etc., than on the development of functional nodes of prostheses. But in terms of its effect on the final result, the socket still remains a painful problem, mostly because of its destructive effect on the locomotor system in general, because the socket cannot bring its load scheme closer to the norm (especially in hip prostheses). Therefore, in the history of our patients, sooner or later, records of diseases of the stump or spine appear as a result of non-rational prosthetic repair.

The dead ends of methods based on receiving sockets exert a negative impact on the technology of implanting the structure, which is brought out through the stoma into the end part of the stump and to which the prosthesis is attached. This method called «osteointegration» has recently been used quite often in some countries. Thus, the process of transferring prosthetic repair from the level of workshops to clinics and laboratories has already begun. Problems related to the duration of fixation of the pin, protection against ascending infections, etc. remain in the field of vision of scientists.

The latest developments in foot and knee prosthetic mechanisms, including those based on bionics, have provided another revolutionary breakthrough. Thanks to them, the biomechanical parameters of gait become close to normal, and in combination with energy recovery by special elements, the energy consumption of a person during the use of prosthesis is significantly reduced.

So far, quality control methods for restoring the functions of the musculoskeletal system are not sufficiently developed, in particular in the case of prosthetic repair, teaching the patient to walk, objectifying the regulation of the prosthesis. We assume that the progress in these directions will be facilitated by the method of registration and recognition of biomechanical movement patterns developed by us, which allows us to assess the degree of restoration of coordination of movements between joints, including natural and artificial ones, to create highly effective control systems and to help patients develop optimal interaction with a prosthesis or orthosis.

The totality of developments in these areas brings radical changes to all components of rehabilitation, both science and practice, and opens a new era. In general, the current level of activity in this field is based on the integration of a significant number of multidisciplinary sciences and technologies. Therefore, it is expedient to consider the inclusion of scientific institutions of the system of the National Academy of Sciences of Ukraine, the National Academy of Medical Sciences of Ukraine in the near future.

The principle of continuity, phasing and unified tactics

Patients should be referred to the hospital immediately after the end of the process of providing intensive medical care. Immediately after an injury, the possibilities of recovery at the basic physiological and psychological levels are maximal. And it must be used as early as possible, immediately after minimal stabilization of vital functions. In addition, if recovery is left to its own devices, without active internal stimuli, a process of chaotic recovery occurs without functional justification and direction, which will lead to the opposite effect. An additional reason for the need for early rehabilitation consists in preventing the consequences of immobilization and bed rest, which significantly increase the risk of complications. The psychological component is also important. A patient, who is not involved in the early stages of an active rehabilitation process, with a high probability, will develop symptoms of secondary reactive depression, which can negatively affect motivation and the recovery process in the future.

Intensive primary treatment in the early stages gradually transitions into less intensive secondary rehabilitation. Subsequently, the stage of supportive treatment comes, which in severe cases can last the patient's life. Planning this process is an integral part of the rehabilitation program from the early stages.

Thus, phasing, continuity of supportive treatment, focus on the duration of rehabilitation treatment, sometimes throughout life, are very important.

The principle of regionalism

The principle of regionalism means bringing rehabilitation services as close as possible to the places of permanent residence of patients and is implemented through the construction of the required number of centers scattered throughout the country. The required number of centers is determined based on the standards adopted in the country. The principle of regionalism is inviolably observed in all countries. The optimal size of the center of 200, a maximum of 300 inpatient beds also follows from it. Adherence

to the principle of regionalism implies a lot of advantages; for example, involving family members in the rehabilitation process, making it necessary and possible for local authorities, public organizations, etc. to participate in it.

That is, based on the above indicators, in peacetime Ukraine should have at least 4,000 rehabilitation beds, creating for this purpose 20–25 rehabilitation centers in different regions of the country. Perhaps the best thing would be to build RC in each region within the framework of the country's reconstruction programs after the war. It is the observance of the principle of regionalism that allows one of the main tasks of the rehabilitation program to be implemented — the return of the patient to the usual social environment. Therefore, the active participation of the patient's family and social environment (for example, colleagues) is absolutely necessary to achieve full success.

The principle of self-rehabilitation

There is no alternative to self-rehabilitation of people with impaired body functions, because this is the main mechanism for returning a traumatized person to a full-fledged life in society. The process of self-rehabilitation lasts a lifetime and it is possible to assist a person in its implementation, but the person cannot be replaced in this. An important purpose of the rehabilitation center is to form the psychological attitudes and mentality of patients for further self-rehabilitation based on the successes achieved in it in restoring health.

But in the same way that the hospital stage of health restoration will not give the proper result without the rehabilitation stage, so the achievements at these two stages are leveled off, if after them a person who has passed all the stages of health restoration and aims at further self-rehabilitation will not be able outside the rehabilitation center to achieve a decent level of quality of life, will not have equal opportunities with other members of society. That is, full-fledged social rehabilitation will not take place. Therefore, it must also be recognized that without multi-component support from the state and society, a person's ability to implement the principle of self-rehabilitation is significantly limited.

For most patients, self-rehabilitation begins first of all with the opportunity to get an education and have a good job. Here are two examples of participation or non-participation of the state and society in this support.

First example. At the beginning of the last century, the great industrialist Henry Ford, having gone around the workshops and other divisions of his enterprises, personally determined in which workplaces people who have lost their limbs, vision, and hearing can work. And six months later, more than 9,000 disabled people worked at his enterprises. Everything was provided for them: from special arrangement of workplaces to adapted toilets. And in 1962, the president of the same country, John Kennedy, canceled all benefits for almost all disabled people. Instead, J. Kennedy's team started a system called the equal opportunity system. Now the whole world lives by this system.

The second example is about how we have equal opportunities in action (not in words). We also focused our young patients on getting an education, and many of them became university and college students, and even steep stairs were not an obstacle for them. But none of the Ukrainian educational institutions had and still does not have such a simple thing as adapted and specially equipped toilets. Therefore, a certain part of our student-patients could not stand a long stay without meeting the body's needs and dropped out of school. The situation with this in various institutions, including councils, administrations, offices, etc., is no better to this day. That is, ensuring equal opportunities for our patients should also take into account such realities, which can cancel out the rehabilitation achievements of the previous stages.

Proposals

1. To develop a strategy, concept and state program for creating a system of rehabilitation assistance in Ukraine. To discuss these documents at scientific professional conferences.

2. To provide for the construction and equipping regional centers within the framework of post-war state reconstruction programs.

3. To create all-Ukrainian and regional registers of individuals in need of rehabilitation assistance (children and adults).

4. During the design and construction of new centers in any region of Ukraine, to take into account world principles regarding the number of inpatient 200 beds. To place RC mostly outside of big cities.

5. In medical educational institutions of various levels, to introduce the training of rehabilitation specialists.

6. To deploy urgently a complex of works on conversion of cars, electric cars, electric scooters to manual control and provide training in their use.

7. To prevent the liquidation of Ukrainian Research Institute of Prosthetics. To transfer the functions of this institution and the property complex to the State Institution Professor M. I. Sytenko Institute of Spine and Joint Pathology of the National Academy of Medical Sciences of Ukraine.

8. In general, regarding the problems of rehabilitation, transfer the functions of the organizer and executor of scientific research to the National Academy of Medical Sciences of Ukraine.

The article has been sent to the editors 01.05.2023

DEVELOPMENT OF THE REHABILITATION SYSTEM IN UKRAINE. ORGANIZATIONAL ASPECTS

O. M. Sitenko

Vashkivtsi Rehabilitation Hospital, Vashkivtsi. Ukraine

✉ Oleksandr Sitenko: sitenko@meta.ua