

# The importance of rehabilitation in the treatment of breast cancer

## *Znaczenie rehabilitacji w leczeniu raka piersi*

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### Abstract

Mastectomy due to breast cancer results in many problems and physical dysfunctions related with the constant necessity to protect the upper extremity at the site of the operated breast, and application of a specialist physiotherapeutic procedure. Rehabilitation is an integral part of the process of breast cancer treatment, and its primary goal is the limitation of selected physical, psychological, and social consequences of this cancerous disease. The achievement of rehabilitation goals requires teamwork – the simultaneous solving of problems in various spheres of the patient's life. This work should be considered as overall care activity concerning a human being according to a holistic approach. A very important element of rehabilitation after mastectomy is to reassure the patient that with the help of specialists she can overcome difficulties, solve her problems, and return to normal daily life.

### Streszczenie

W wyniku mastektomii z powodu raka sutka u pacjentki powstaje wiele problemów i dysfunkcji fizycznych związanych z koniecznością ciągłej ochrony kończyny górnej po stronie operowanej piersi oraz stosowania specjalistycznego postępowania fizjoterapeutycznego. Rehabilitacja stanowi integralną część procesu leczenia nowotworu piersi, a zasadniczym jej celem jest ograniczenie niektórych fizycznych, psychicznych i społecznych następstw choroby. Realizacja celów rehabilitacji wymaga pracy zespołowej, jednoczesnego rozwiązywania problemów różnych obszarów życia osoby chorej. Należy traktować ją jako całość działań opiekuńczych dotyczących człowieka w ujęciu holistycznym. Bardzo ważnym elementem rehabilitacji po mastektomii jest utwierdzenie chorej w przekonaniu, że może ona z pomocą zespołu specjalistów pokonać trudności, rozwiązać swoje problemy i powrócić do codziennego życia.

### Introduction

Morbidity due to breast cancer in Poland is increasing dynamically, which is closely related with the ageing of the population and changes in life style. At present, in Poland, among the total number of cancer cases among females, this type of cancer is the cause of every fifth case of disease and every eighth death [1]. The large number of deaths is due to making the diagnosis of breast cancer at late stages of its advancement (Degrees III and IV). Therefore, it is necessary to implement prophylactic programmes and carry out health education among the general public. Only active taking of control of the disease, and overcoming anxiety and fear in women may constitute the basis for breast cancer control. Early diagnosis and undertaking of treatment may lead to the curing of the disease.

Despite the intensive development of the methods of conventional treatment, surgery still remains the basic method of radical treatment. In addition, in all patients, irrespective of the type of surgery, supplementary treatment is carried out in the form of chemotherapy, radiation, and hormone therapy [2]. Throughout the entire process of treatment and rehabilitation, cancerous disease is perceived by a patient as a strong traumatic experience, which evokes negative emotional reactions [3–5].

### The importance of rehabilitation in breast cancer treatment

According to Surowiec, the rehabilitation of women after amputation of the breast is characterised by specificity resulting from the essence of physical and

psychological impairment, and results from the fear of invalidity and death [6].

The goals of rehabilitation of patients after mastectomy are as follows:

- to increase the scope of movements in the shoulder joint on the surgical side;
- to increase muscular strength of the upper extremity on the surgical side;
- to prevent lymphostasis in the extremity and surgical area, and acting on behalf of formation of the collateral circulation;
- to control oedema and apply special exercises and physical procedures;
- to correct postural changes occurring after the amputation of the breast;
- to help in the adaptation to altered life conditions through exerting an effect on the patient's psyche [7, 8].

Adequately conducted rehabilitation should begin at the moment of admission of a patient to hospital. The programme of complex rehabilitation covers the following stages:

- psychophysical rehabilitation during the stay in a hospital (10–15 days);
- rehabilitation procedure after the discharge from hospital (7–8 weeks);
- special procedure undertaken after the occurrence of lymphoedema and postural defects which are the consequence of the surgical procedure;
- fixation of the effects obtained [7].

The achievement of rehabilitation goals requires teamwork and simultaneous solving of physical, psychological, social, and occupational problems of a patient. These should be considered as overall care activities concerning a human being according to a holistic approach [6].

### Physical rehabilitation

Physical rehabilitation is an integral part of the process of treatment of breast cancer, and its primary goal is the limitation of selected physical and psychological consequences of the disease. Rehabilitation of women treated due to breast cancer should be started as early as possible. It is aimed at prevention of complications and functional disorders after the treatment of malignant carcinomas.

Physical consequences of the disease include the following: lack of a breast or a change in its appearance, limitation of mobility in the joints of the shoulder girdle and reduction of muscular strength of the extremity on the surgical side, lymphoedema of the upper extremity, pain, and postural defects. Especially in women who have big breasts, as a consequence of the surgical procedure there is an elevation or lowering of the shoulder, sloughing, winging of the scapula, and even deformity of the spine [3, 6, 9].

Physical rehabilitation consists in the application of physical exercises based on the dynamic work of muscles. This work is related to the performance of rhythmic muscle contractions that create the most favourable conditions of exerting an effect on the blood and lymphatic vessels, with a simultaneous increase of muscular strength and improvement of movements in the joints of the shoulder girdle. The performance of exercises of the upper extremity in drainage positions without loading it is also indicated. Exercises are performed starting from the first day after the surgery, first in hospital conditions, then individually or in groups [7]. During the pre-operative period, education is carried out for exercises applied after surgery, as well as education of patients concerning the code of conduct in daily life.

In Poland, the early post-operative period is usually divided into three stages. On the first, second and third day, respiratory exercises are performed, active exercises of the hand and elbow joint on the surgical side, supported and self-supported exercises, followed by active exercises, free exercises in the humeral joint, initially in the sagittal plane and then in the transverse and frontal planes, as well as loosening exercises. The extremity on the surgical side is placed on a gusset, in such a way that the upper extremity is above the level of the chest. From the fourth until the sixth day after surgery, exercises are performed in a sitting position. At the final stage, between the seventh and tenth day after surgery, exercises are started in a standing position, with the introduction of some elements of active exercises with resistance. Generally, within 10–14 days after surgery, the patient should retain the normal range of motion in the humeral joint.

After completion of the hospital stage, patients continue rehabilitation in ambulatory conditions (including Amazon's club) and in spa resorts. In spa rehabilitation physiotherapeutic procedures are applied, such as:

- kinesitherapy based on dynamic muscle work, group therapy (general fitness exercises and endurance training), or individual therapy in accordance with the diagnosed functional disorders, as well as loosening exercises;
- selected types of classic massage facilitating lymph flow and venous circulation;
- different varieties of instrumental massage, e.g. rhythmic sub-pressure massage, aquavibron, and vibration massage;
- sub-water massage;
- whirlpool baths and other procedures ordered by a medical specialist [6, 7, 10].

During their stay in a spa the patients participate in group therapy, whereas a psychotherapeutic added value are common walks, excursions, and other forms of leisure activity [7].

All patients should be familiarised with anti-oedema prophylaxis, within which they are taught auto-massage to improve lymph flow, it is recommended to keep the upper extremity in a high position during sleep and leisure; patients are also taught to function in daily living. Self-massage facilitating lymph flow is a massage performed by the patient herself. Various techniques of classic massage are used, e.g. stroking and kneading. During the massage, all movements should be performed in a centripetal direction. The patient should not sleep on the surgical side, perform blood pressure measurement on that side, or receive injections, and should avoid hard physical labour [7, 9, 11].

The rehabilitation of patients with lymphoedema requires complex procedures [12, 13]. Mobility exercises are associated with exerting a mechanical effect on the limb, resulting in lymph drainage. For this purpose the following forms of massage are applied: lymph drainage massage, pneumatic rhythmic massage, whirlpool hydro-massage, and computer stimulation. Physical exercises should be performed in high positions, facilitating lymph outflow [7, 14].

Complex Decongestive Physical Therapy (CDPT) is the form of conservative treatment of lymphoedema that is currently considered as the most effective; and it is the most prevalent in Poland [15]. It covers the following two subsequent phases of therapy:

- intensive phase, aimed at a maximum reduction of oedema by daily use of manual lymphatic drainage therapy, multi-layer compression bandaging, and exercises improving lymph outflow. Intensive treatment is completed in cases when it is not possible to achieve further reduction of the circumference. The duration of the first phase depends on the advancement of oedema in the patient [16, 17];
- maintenance-optimization phase, which is aimed at fixation and maintenance of the effects of therapy obtained during intensive treatment. The following procedures are performed: self-massage, compression therapy in the form of elastic compression materials, and exercises improving lymph outflow. The duration of this phase usually covers the entire life of the patient due to the chronic character of the problem [18–20].

The selection of a proper breast prosthesis becomes very important during the first weeks after surgery. The prosthesis should be adjusted to the healthy breast with respect to weight, size, shape, and colour. This is of tremendous importance for a woman and also prevents changes in the statics of the trunk [9, 11, 14].

In the course of chemotherapy, physical exercises are applied, including those with the use of specialist physiotherapeutic techniques stimulating proprioception, e.g. PNF, with the consideration of the patient's state and capabilities. Also, in favour of physical

exercises, is the fact that they distract patients' attention away from complaints related with this type of treatment. Considering the possibility of occurrence of neuropathies caused by some cytostatics, in the region of lower extremities and hands, whirlpool baths and sub-water massages are recommended [21].

During the period of radiotherapy, many respiratory and relaxation exercises are implemented. The objective of rehabilitation exercises is the prevention of lymphoedema, and improvement of the circulation of blood and lymph in the radiated region by increasing the scope of motion and muscle strength in the limb on the surgical side. During the massage, manipulation should be avoided in the region covered by radiation [6].

In some patients, after mastectomy combined with lymphadenectomy, lymphoedema develops. It occurs primarily during the first phase after surgery, but may also occur later – several months or several years after amputation of the breast. This results from the lymph flow in the system of the lymphatic vessels, and excessive accumulation in the intracellular space of high protein interstitial fluid, which causes changes in the appearance of the extremity, i.e. its increased circumference and weight. For the treatment of lymphoedema the following methods are applied: placing in a particular position, pressure cuffs, pneumatic pumps, lymphatic massage (including self-massage performed independently by a patient), and pharmacotherapy. The massage and lymphatic self-massage improve venous blood and lymph flow on the surgical side. The upper extremity on the surgical side should be relaxed and placed on a rehabilitation wedge, foam roller, or cushion in such a way that it is lifted above the shoulder joint. Lymphatic massage may be started several days after surgery [12–14, 16–18].

In patients who have undergone radical surgery permanent or partial impairment of the nerves in the surgical region may occur. Permanent impairment may be manifested by the loss of all types of sensation (pain, touch, temperature), flaccid paralysis of muscles, and atrophy of muscle groups on the surgical side. In partial nerve impairments paraesthesia, tingling sensation, and perspiration disorders prevail [14].

In some patients there phantom complaints occur, which may persist for a long period of time after surgery. All problems and complaints reported by a patient should be considered while planning and performing rehabilitation activities of a patient after mastectomy.

A systematic continuation of rehabilitation is necessary in home, ambulatory, or spa conditions. Patients should perform the full range of exercises taught in hospital, and should observe anti-lymphoedema prophylaxis and recommendations related with wearing breast prostheses.

### Psychological rehabilitation

Breast cancer causes disorders in the patient's equanimity and evokes a crisis in her psyche. The factors which exert an effect on the development of a crisis situation are the diagnosis, treatment, examinations, and relapse, i.e. recurrence of the disease. A diagnosis of cancer is related to the following unpleasant experiences: pain, suffering, and death [4, 22]. Therefore, according to de Walden-Gałaszko, it is necessary to provide support for ill women. The researcher distinguished two types of support, i.e. external and internal [23, 24]. The external support is primarily a friendly presence, empathy, and the skill of listening. Internal support means the strengthening of the resources that exist in an ill human being – an intrinsic strength.

Basic support is provided to a patient by significant others, and they obtain professional assistance from psychologists. Women with breast cancer also value emotional and practical support provided by the Amazons belonging to the Amazon Breast Cancer Support Groups, where they encounter better understanding and may obtain new patterns, while observing others in a similar situation who have managed to accept their state, and consequently function normally. Activity in Amazon groups, the number of which in Poland is over 200, facilitates for patients the making of personal decisions, finding incentives to regain health, and enables the achievement of the best possible quality of life [10, 25, 26].

Psychotherapeutic interventions undertaken with respect to women affected by breast cancer come from various theoretical approaches used in psychotherapy. After preliminary reports that have confirmed the effectiveness of a psychodynamic approach, at present, psychoanalysis has been rejected as a method of therapeutic work, in favour of a cognitive-behavioural approach. This procedure consists of the organisation of group sessions lasting for some time, during which the participants learn various types of cognitive and behavioural strategies of coping with stress, such as cognitive restructuring, use of statements which help in coping, and monitoring of one's own thoughts. During such sessions the patients acquire knowledge and skills in the area of effective communication, relaxation techniques, as well as establishing and planning goals [23, 24, 26, 27].

Expressive therapy is the basic form applied with respect to breast cancer patients: so-called expressive writing, i.e. expressing emotions in writing. Expression of emotions in stressful and traumatic situations brings about many somatic and psychological benefits. The majority of women, at the moment of oncologic treatment, want to talk and show the need to obtain emotional support that can enable the expression of their emotions. Therefore, the expression of emotions by writing them down may help in the reduc-

tion of the level of distress, especially in patients who have difficulties with breaking social barriers related with the expression of emotions [22, 28].

There are many methods that can be used to exert a positive effect on patients with a diagnosis of breast cancer [29].

According to psychologists, patients using psychotherapy aim at the acquisition of knowledge, skills of coping, and minimisation of distress function better than those who have not participated in such interventions. This concerns not only the reduction in their level of anxiety, but also an improvement of their own body image and better sexual functioning. These women are more satisfied with the medical services provided and thoroughly observe medical orders [30–32].

Psychological support provided for breast cancer patients may be classified according to the following: form – individual or group; moment of application – before treatment, during treatment, or after the completion of treatment; orientation – supportive, cognitive, behavioural; duration; type of population covered [33–35].

Psychological support includes the following interventions:

- interventions of a supportive character (supportive-expressive therapy, supportive therapy, self-help groups – an excellent example of which are the Amazons);
- interventions of a psychotherapeutic character (cognitive-behavioural therapy, individual therapy, family therapy, expressive therapy, psychological therapy);
- interventions of educational character (teaching techniques of coping with stress caused by a cancerous disease and psychoeducation);
- exerting an effect on physiological mechanisms by decreasing the stimulation level (massage, relaxation, visualisation, and biofeedback) [33–35].

The fundamental goal of psychological rehabilitation after radical breast cancer surgery is the mobilisation of psychological resources in a patient, in order to activate compensatory mechanisms of the physical and psychical functions lost after surgery. Adequate management consists of the formation, in women who have undergone surgery, of an adequate attitude towards the irreversible loss of the breasts. The patients must understand that in the new situation they have a chance to function normally in every sphere of life [36, 37].

The psychotherapeutic procedures are aimed at stimulation of the patients' will to live and act, by affecting the motivation and personality sphere. Women after mastectomy should continue to be active.

According to Czerwińska, the goal of rehabilitation of patients after mastectomy is the restoration of

their psychophysical fitness, self-confidence, and the sense of dignity [14].

### Socio-economic rehabilitation

Chronic diseases, especially breast cancer, pose patients with many challenges of a social character. The consequences of this type of disease result in many changes of behaviour and are closely associated with transformation of the patient's current life situation. They contribute to complete or partial resignation from previously performed social, family, and occupational roles, as well as socialising [38, 39].

The disease creates a new situation for a patient, which may be described as follows:

- the disease may lead to the limitation or loss of contact with the outer world, and additionally changes the patient's perception of it;
- due to the disease, the patient starts to perceive their own body through pain, complaints, and suffering, focusing attention on her body, and this is the body which delineates the framework of her new situation;
- the disease makes it difficult or impossible for a woman to undertake various actions related with work or school, which link her with the outer world; everything starts to revolve around their body and health;
- the disease restricts the patient's identity, forcing her to focus attention on poorly functioning organisms;
- experience of the disease is not available to others; one cannot share the pain experienced or other complaints. An individual is closed within the world of their own sensations, lonely within the disease; therefore, the information passed by the patient becomes of importance in the diagnosis of her state; it is very important that a nurse is able to obtain and interpret this information [40, 41].

The consequences of a cancerous disease affect various spheres of social life and cause considerable interference.

Sometimes, a patient faces the necessity to become isolated from her significant others, resign from occupational activity, weaken or break social contacts, and resign from life plans and aspirations. At the moment of resigning from occupational activity and limiting social contacts, the number of people she has contact with considerably decreases. The consequence of this situation may be living in total loneliness, or only within the environment of her closest family. It often happens that a patient consciously isolates herself from the surrounding environment due to her disability. Patients who are accepted by their significant others tolerate their disease better, while those who have problems and family conflicts are stuck in chronic depressive reactions. Lack of support from a family very often evokes feelings of frustration, hopelessness, and

low social value in patients. This results in discouragement, depression, lack of cooperation with medical staff, conflict, as well as indifference with respect to the patient's fate and a lack of will to fight with adversities brought on by the disease [41, 42].

In the situation of a chronic disease and the resulting disability, physicians and nurses have a very important role to perform. The social support that they provide for a patient manifests itself in care, trust, and respect. These values are components of emotional support. The element of informative support is the provision of information and advice. There is also instrumental support, which consists of mutually solving problems. Non-judgemental support consists of expressing acceptance, encouragement, and understanding [22, 32].

Social support is a specific form of assistance, which enables the overcoming of problems, difficulties, and conflicts, as well as triggering self-confidence, leading to the mobilisation of strengths, and thus contributing to the independent overcoming of difficulties by a patient.

Social support is described as positive resources, increasing resistance to stress through interactions with others.

The basis for social support includes bonds – positive reactions evoked and taking place between people. In Polish culture, the mean number of people who provide support for a patient ranges from six to eight, and is defined as a network of social bonds. Social support may be applied as the only form of assistance when a patient has great potential of their own capabilities and possibilities for overcoming problems. In order for social support to come into being, interpersonal contact is necessary between the supported and the supporting person, which may be by telephone, letter, electronic, or direct contact [37, 40].

The technological progress that has taken place gives new opportunities for the provision of psychological support. In Poland, there are various types of contact through the Internet, aimed at supporting women with breast cancer. The Internet allows a wider range of effects and faster contact, but will never replace actual contact. Nevertheless, it is important and helpful in crisis situations in acquiring and exchanging information concerning the disease and the methods of treatment, and also enables patients to make new social contacts and express their emotions.

### Summing up

Surgical treatment is the basic method of treatment of patients with invasive breast cancer. In the lower stage of advancement of the carcinoma, breast-conserving therapy (BCT) is used, while in higher stages of advancement of locoregional cancer, a conservative amputation of the breast is applied [21].

In both methods the removal of the lymphatic system of the armpit is performed, which is the source of the majority of complications and causes limitations in the patient's psycho-physical fitness after surgery. The quality of life of patients after mastectomy deteriorates and is closely related with the limitation in mobility of the shoulder joint, inadequate body posture, lymphoedema of the upper extremity, and many problems of a psychological nature resulting from oncological treatment. Therefore, in order to obtain a maximum life efficacy and limit the distant, unfavourable consequences of the disease, it is indispensable to provide all patients with a rehabilitation programme.

In order to maintain mobility in the shoulder joint, adequately selected exercises should begin to be performed as soon after surgery as possible. In patients with complete mobility and without oedema, self-massage, respiratory exercises, general fitness exercises, and active recreation are recommended. An important element of rehabilitation is the undertaking of problems of education pertaining to behaviour in daily living, prevention of secondary lymphoedema, and other issues faced by women who have undergone treatment for breast cancer.

Adequate adaptation of women after mastectomy to their altered life situation requires the active engagement of the patient and people in her environment in order to counteract isolation from others, and to eliminate feelings of low self-esteem [22, 31].

Mastectomy is a surgical procedure that causes irretrievable loss of certain life values. Rehabilitation offers new, sometimes replacement values of existence. Women who after mastectomy participate in the activity of a rehabilitation group discover new values in life. Participation in rehabilitation group programmes provides women with the possibility of making new social contact through formal and informal support groups.

Rehabilitation and the skilful application of rehabilitation methods are of great importance at each stage of the disease. The possibility of using rehabilitation classes is frequently a sign of the possibilities of further treatment for a patient, and a source of hope and faith in the effectiveness of therapy, of which they cannot be deprived [14, 22].

## Conclusions

As a result of mastectomy, patients face many problems and physical dysfunctions related with the necessity for constant protection of the upper extremity on the surgical side, and the application of specialist physiotherapeutic procedures. Rehabilitation is an integral part of the process of treatment of breast cancer, and its primary goal is the limitation of selected physical, psychological, and social consequences of the disease. Strengthening a patient's belief that with the help of specialists she may overcome difficulties,

solve her problems, and return to daily living is a very important element of rehabilitation after mastectomy.

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