

Cosmetic and social concerns in breast cancer

Kosmetologiczne i społeczne problemy w chorobie nowotworowej piersi

ABSTRACT

The World Health Organisation defines health as not merely the absence of disease, but as a state of complete physical, social, and mental well-being. Consequently, in the context of cancer, it is essential to implement interventions at various levels to enhance the treatment process and optimise outcomes.

This study aimed to elucidate the alterations in the skin of women with breast cancer receiving oncological treatments and care methodologies. The issue of oncology patients' perception of attractiveness was also discussed.

Applying cosmetological services during oncological treatment can enhance well-being, expedite the healing process, and elevate the patient's social value.

Keywords: oncology cosmetology, oncology, oncology patient, breast cancer, cosmetology practice, oncocosmetology

STRESZCZENIE

Według Światowej Organizacji Zdrowia, zdrowie to nie tylko brak choroby, ale pełne dobre samopoczucie fizyczne, społeczne i psychiczne. Dlatego w kontekście chorób nowotworowych ważne jest podejmowanie działań na wielu poziomach, co wspiera proces leczenia i poprawia jego efekty.

Celem pracy było przedstawienie zmian obserwowanych na skórze kobiet chorujących na nowotwór piersi poddanych terapiom onkologicznym oraz adekwatnych metod pielęgnacji. Omówiono również aspekt poczucia atrakcyjności pacjentek onkologicznych.

Korzystanie z usług kosmetologicznych w trakcie leczenia onkologicznego może poprawić samopoczucie, przyspieszyć proces zdrowienia oraz zwiększyć wartość społeczną osoby chorej.

Słowa kluczowe: kosmetologia onkologiczna, onkologia, pacjentka onkologiczna, nowotwór piersi, gabinet kosmetologiczny, onkokosmetologia

INTRODUCTION

The 20th-century definition of cancer by British oncologist R.A. Willis is still relevant today. A neoplasm is defined as an abnormal tissue that proliferates excessively and uncontrollably within normal tissues [1]. Cancer was previously regarded as an incurable disease, resulting in premature mortality. Currently, numerous therapies exist that can result in complete recovery. However, they often carry the risk of side effects and adverse reactions, which

can also affect skin conditions. With the rising incidence of breast cancer and the changing needs of cancer patients, who often seek help from cosmetology offices, cosmetologists have a real impact on improving the quality of life for those affected by cancer. In response to the growing demand, a sub-discipline of cosmetology - oncocosmetology - has emerged. Oncocosmetology is a difficult field, requiring a great deal of knowledge, skill, empathy, and cooperation with physicians.

INCIDENCE OF BREAST CANCER IN POLAND

According to the Polish Society of Clinical Oncology, a neoplasm is an abnormal tissue characterized by excessive growth, disordered by normal bodily functions [2]. Neoplasms are divided into benign and malignant. In Poland, the most common malignant tumor in women is breast cancer. According to data from 2020, breast cancer accounts for 25% of all malignant neoplasms in women in Poland. In contrast, in the European Union, the incidence of breast cancer accounts

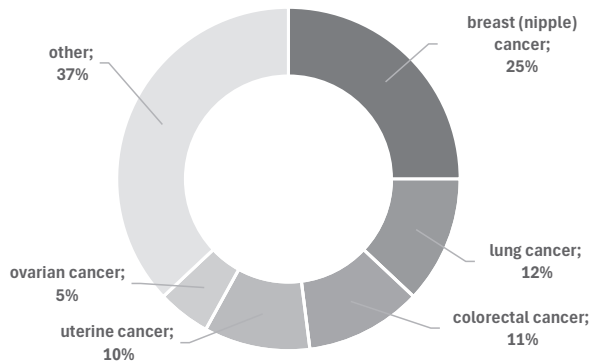


Fig. 1 Cancer incidence among women in Poland according to the database from 2020
Source: Own compilation based on [4]

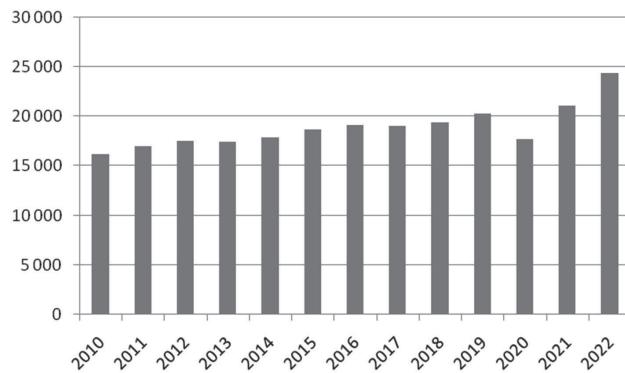


Fig. 2 The number of cases of breast cancer in women in Poland from 2010 to 2022
Source: Own elaboration based on [4].

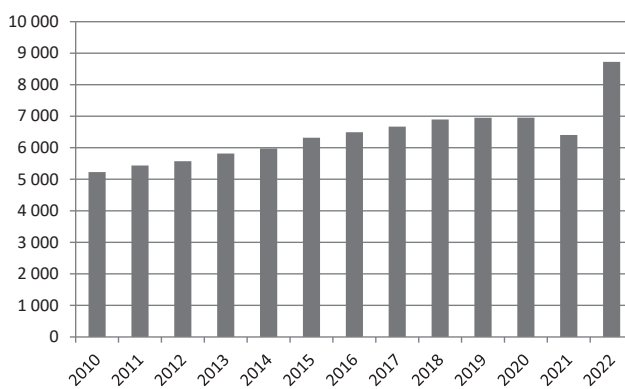


Fig. 3 Number of deaths from breast cancer in women in Poland between 2010 and 2022
Source: Own compilation based on [4]

for almost 30% of all cancers (fig. 1). Approximately 1.5 million women globally receive a breast cancer diagnosis each year, with around 400,000 dying to the disease [3].

Fig. 2 presents the number of breast cancer cases in women in Poland in 2010-2022. There is an increasing trend from year to year, with the exception of 2013, 2020 and 2021. In 2010, breast cancer was diagnosed in 16187 women, while in 2022 the number of cases increased to 24418.

Fig. 3 shows the number of deaths due to breast cancer in women in Poland from 2010 to 2022. In the case of mortality, there is also a noticeable upward trend. In 2010, 5226 women died from breast cancer, while in 2022, 8723 women died. Over the years studied, the number of deaths increased by an average of 291 deaths compared to the previous year.

ONCOLOGICAL TREATMENT AND ITS IMPACT ON THE SKIN

Oncological treatment can cause skin complications that negatively affect quality of life. Sometimes the side effects manifested on the skin are the reason for changing or modifying oncological treatment, leading to decreased effectiveness [5]. One of the most commonly associated symptoms of cancer is hair loss, which affects about 65% of patients and usually appears within 1-2 weeks of starting therapy [5]. Hair loss can be total or partial and is associated with more than just the scalp - it can also involve the underarms, pubis, arms and legs. Cytostatic drugs sensitize hair follicle cells, resulting in weakened hair and subsequent loss. It is worth noting that hair loss depends on the type and doses of chemotherapeutics [6]. A hairless scalp may itch. Hair usually grows back within a year after treatment, but its thickness and color may change [7]. Baldness is often a temporary and reversible stage and is one of the most traumatic side effects of treatment. Hair is considered one of the attributes of femininity, and its loss can sometimes be a psychologically debilitating experience, affecting self-esteem and self-worth. To address the necessity of concealing a hairless scalp, women employ various methods for coverage. These include caps, turbans, and wigs. The last ones are reimbursed by the National Health Fund (NHF) [8]. Chemotherapy also causes several other skin symptoms. These include nail changes, increased dryness of the skin due to disruption of the epidermal barrier, sensitivity to sunlight, erythema, excessive peeling, irritation, swelling, pruritus, hypersensitivity to touch, and a tendency to local inflammation. Sensitization to sunlight can cause the appearance of burns and hyperpigmentation [7]. During chemotherapy, the hydrolipid barrier of the skin is damaged, resulting in increased transepidermal water loss, as well as impaired skin protective functions, increasing susceptibility to bacterial, viral and fungal skin infections. A characteristic cutaneous side effect of chemotherapy is hand-foot

Table 1 Early and late symptoms of radiation therapy

Radiotherapy	Side effects	Results of side effects
Early symptoms - a few weeks after starting treatment	Damage to sebaceous and sweat glands. Excessive stimulation of pigment cells. Damage to hair follicles. Increased release of pro-inflammatory cytokines, including interleukin 1 and 6, TNF- α , TGF- β .	Excessive dryness of the skin, Pigmentation disorders, Hair loss.
Late symptoms - several months after the end of treatment	Decrease in the population of fibroblasts. Resorption of collagen fibers. Damage to the vascular endothelium.	Atrophic changes, loss of elasticity of the skin, appearance of telangiectasias.

Source: [9]

erythrodysesthesia, known as hand-foot syndrome. This symptom can be divided into different stages, depending on the severity of skin lesions and complaints [7].

- I. Painless erythema, swelling, redness, tingling.
- II. Skin lesions accompanied by pain - keratosis, blisters, swelling, bleeding.
- III. Painful sores that make it impossible to function.
- IV. Severe skin lesions accompanied by pain - desquamation, bleeding, hyperkeratosis.

Radiation therapy, like chemotherapy, also affects healthy cells in the body. Irradiation has the advantage of being applied locally, which means that complications associated with radiation therapy occur most often in the treatment area [7]. Proton therapy is a contemporary technique employed in radiation treatment. The high efficacy is guaranteed by the precise targeting of the radiation beam on the cancerous tumour, minimising damage to healthy tissues and thereby decreasing the risk of complications [8]. Skin symptoms associated with radiation therapy may appear during the first month of treatment and often persist for several weeks afterwards. According to Rybarczyk et al., skin changes after radiotherapy include dryness, burning, itching, pain, impaired healing, redness, hyperpigmentation, damage to hair follicles and sebaceous glands, tendency to scarring, vascular compromise, and telangiectasias. However, Wisniewski et al. differentiate the symptoms of radiotherapy effects into early and late [9].

When radiation symptoms occur, it is important to monitor and assess the severity of skin lesions. To this end, some scales have been developed to monitor local radiation reactions. These include the *European Organization for Research and Treatment of Cancer (EORTC)* scale and the *Radiation Therapy Oncology Group (RTOG)* scale.

COSMETOLOGICAL CARE OF THE ONCOLOGY PATIENT

Perception of attractiveness during cancer illness

Nowadays, there is a cult of the beautiful and ideal body, so side effects of cancer treatment, such as hair loss, or going further

Table 2 RTOG scale

Grade	RTOG scale
0	No change
I	Spotting and/or fine papular rash or redness, asymptomatic
II	Spots and/or fine papular rash or severe redness with pruritus
III	Generalized symptomatic papular rash, hyperpigmentation or vesicular rash
IV	Exfoliative or ulcerative dermatitis
V	Death

Source: [10]

the loss of breasts as a result of mastectomy can be extremely difficult for women to accept. Social and cultural pressure can exacerbate women's difficulties in accepting their appearance, leading to exclusion from life and society [11]. Cancer causes an abundance of anxiety, stress and uncertainty, and can affect a woman's lower self-esteem. For many women, one of the greatest assets of their attractiveness is their breasts. Langellier et al. identified four interpretations of the breast [12]. In the first view, the breast is described in medical terms as a part of the body in the context of health and disease. The second interpretation is functional, referring to the nourishment of offspring, and concerns motherhood. Another meaning of the breast is attributed to femininity and attractiveness. A fourth explanation is considered in terms of sexuality [12]. The loss of this organ as a result of disease affects not only the physical health aspect, but also impacts mental health. 'The subtraction of the breast, which symbolizes femininity and motherhood, causes stress, feelings of shame, and concerns about lost attractiveness' [13]. Lachowicz and Etowska point out that the loss of breasts, in addition to changes in corporeality, causes damage to one's attractiveness and an avalanche of unpleasant experiences that a woman must face [14]. The emotional aftermath of breast cancer is referred to as the 'half-woman complex', which manifests itself in lowered self-

esteem, lack of acceptance of one's appearance and body, and fear of losing a partner [15]. Sobol et al. noted that women who had experienced a mastectomy accepting their bodies and undermined their sexuality. Moreover, the problem may be exacerbated by fear of rejection and exclusion, as well as fear of talking about their emotions, leading to misunderstanding and loneliness [16].

A cancer diagnosis is a barrage of changes, not only in terms of appearance and one's self-esteem, but also in the hierarchy of values and goals. Lachowicz and Etowska distinguish two extreme attitudes that are often adopted by cancer patients. They can greatly affect a patient's quality of life and determine the long-term effects of treatment [14].

Since antiquity, efforts have been made to elucidate the essence of quality of life, with Aristotle and Hippocrates seeking to establish the principles of a fulfilling existence. In 1993, the World Health Organization defined the term 'quality of life', according to which it is a person's subjective assessment of their life situation concerning various spheres: cultural conditions, the environment in which they live, health, freedom, happiness, and education. At once, the term quality of life meant 'good life'. Currently, this term typically refers to physical, mental, and social well-being. A study assessing the quality of life of cancer patients undergoing chemotherapy and radiation therapy indicated that cancer adversely affects patients' quality of life, influenced by both the disease progression and the treatment administered [17].

The journey to self-acceptance for a woman battling cancer is challenging. Self-acceptance is crucial as it alters the cognitive processes of a patient. The woman ceases to perceive herself as an ill person and begins to identify as a recovering one. 'It is at this point that the role of a woman capitulating in the face of illness is replaced by the role of a woman who bravely faces this illness' [16].

Women affected by cancer need understanding and support. Invaluable help for a ailing woman is provided by other women who have experienced or are still experiencing cancer. Sobol et al. stress that together it is easier to seek strength and energy to rebuild one's self-image, discover potential, and gradually restore a sense of attractiveness.

Therefore, patients are encouraged to look for a local support group. In Poland, the most recognizable association for post-mastectomy women is the 'Amazons'. The growing demand for support is leading to the formation of more and more groups for women after cancer. These groups aim to exchange experiences, promote healthy habits and support each other in the healing process. Joining such a support group, can be invaluable in the recovery process [16].

Skin care during and after treatment

Oncological treatment can negatively affect the condition of the skin, causing dryness, reactivity and sensitization. Epidermal renewal processes are disrupted, which can promote itching and peeling skin. As a result of increased sensitivity, the skin becomes more susceptible to damage and to the adverse effects of ultraviolet radiation. Due to the side effects of cancer therapy, it is important to take care of the condition of the skin both during and after treatment [7]. It is advisable to use products that strengthen the hydrolipidic barrier of the skin, as well as its defence functions, and use photoprotection. After radiation and chemotherapy, the skin requires special care: multidirectional moisturization (occlusive, hygroscopic, hydrophilic actions) and strengthening of the skin's protective mantle and antioxidant barrier [7].

Table 4 lists desirable substances in cosmetics recommended during or after cancer treatment.

Also valuable are waxes, folic acid, ammonium lactate, canola oil, liana oil, sunflower oil, evening primrose oil, olive oil, borage oil, prebiotics, and algae [7].

Substances not recommended for people undergoing cancer treatment are those with irritating and exfoliating effects, among which are:

- Vitamin A and its derivatives,
- Salicylic acid and its derivatives,
- AHA acids,
- essential oils,
- detergents,
- fragrances,
- dyes,
- alcohol,
- formaldehyde.

There are many contraindications to in-office therapy in case of cancer. Many professional treatments are not recommended due to the possibility of increased blood circulation and stimulation of the body. Treatments using electromagnetic, electric, high-temperature and infrared fields are inadvisable due to the potential risk of disease progression [19]. Cryotherapy and mechanical treatments such as microdermabrasion, lasers, chemical peels and tanning beds are also contraindicated. The aforementioned treatments frequently provoke stimulation and inflammation,

Table 3 Attitudes adopted by patients with cancer

Type of attitude	Characteristics
Active attitude	<ul style="list-style-type: none"> - Treating illness as a sign to make changes in life. - Focusing on action leading to recovery.
Passive posture	<ul style="list-style-type: none"> - Resignation and loss of hope for successful treatment. - Seeing illness as a punishment. - Blaming oneself. - Suppressing emotions.

Source: [14]

Table 4 Substances recommended in cosmetics

Ingredient	Action	Allergicity	Origins
Panthenol	Anti-inflammatory and moisturizing, accelerates epidermal regeneration processes, soothes irritation.	No allergenicity	Synthetic
Allantoin	It has soothing and irritation-relieving properties. Stimulates the growth of healthy tissue, so it promotes skin regeneration. Moisturizing, emollient and anti-inflammatory action.	No allergenicity	Synthetic, vegetable, animal, natural
Paraffin	It exhibits an occlusive, lubricating effect. Prevents excessive evaporation of water from the epidermis.	No allergenicity	Synthetic mineral
Resveratrol	Antioxidant, anti-inflammatory, antiviral, antibacterial activity.	No allergenicity	Plants
Betulin	Anti-inflammatory, antiviral, antioxidant, antihistamine, soothing effects.	No allergenicity	Plants
Glycerin	Moisturizing, occlusive. Prevents excessive evaporation of water from the epidermis.	No allergenicity	Synthetic, vegetable, animal
Vaseline	Moisturizing, occlusive. Prevents excessive evaporation of water from the epidermis.	No allergenicity	Synthetic, natural
Hyaluronic acid	Moisturizing, prevents excessive water loss from the epidermis, and shows healing properties. Soothes inflammation.	No allergenicity	Plant, synthetic, animal
Urea	Moisturizing. It can penetrate the stratum corneum. Has a keratoplastic effect (softens the stratum corneum).	No allergenicity	Synthetic
Collagen	It influences the renewal process of the epidermis. It has a moisturizing effect, improving elasticity and firmness. Soothes irritation.	No allergenicity	Animal
Aloe vera	Moisturizing, soothing and anti-inflammatory effect. Reduces redness of the skin.	No allergenicity	Plants
Flaxseed extract	Moisturizing, regenerating, antioxidant action, strengthens the lipid barrier of the skin.	Has allergenic potential	Plants
Oat seed extract	Antioxidant, anti-inflammatory, soothing irritation, occlusive action.	Has allergenic potential	Plants
Squalane	Occlusive, prevents excessive evaporation of water from the skin surface.	No allergenicity	Plant, synthetic, animal
Ceramides	Moisturizing, rebuilding the hydrolipidic barrier of the skin	No allergenicity	Plant, synthetic, animal
Cholesterol	Occlusive, prevents excessive water loss from the epidermis.	No allergenicity	Plant, animal

Source: Own compilation based on [7, 18]

which is undesirable in cancer, as it can adversely impact the skin and is associated with the potential progression of the disease [7].

The basic principle in working with a person affected by cancer is to contact their oncologist and get permission to possibly perform the procedure [7]. Throughout the progression of cancer, interventions that mitigate the adverse effects of treatment are particularly significant. It is advisable to utilise procedures aimed at enhancing the skin's protective capabilities while also providing relaxation and aesthetic benefits. The importance of gentle oncology massage is also emphasized, during which endorphins are released to improve mood. In addition, this technique improves sleep, which is disrupted during cancer treatment [20]. Oncology

rehabilitation, which consists of a series of activities aimed at restoring and improving the client's psychophysical state, is also important. Among them are physical and breathing exercises, as well as lymphatic massage. In the context of oncology rehabilitation, massage is used to restore proper circulation in the lymphatic system and reduce lymphedema [8].

There are cosmetic and beauty treatments that are recommended to be performed before starting cancer treatment. Such treatments include, for example, permanent eyebrow makeup. During cancer therapy, one of the common side effects is hair loss, which results in the loss of eyebrows and eyelashes. In addition to permanent eyebrow makeup, there are also less permanent eyebrow styling methods. In



Fig 4 Nipples, a) before the pigmentation procedure , b) after the procedure **Source:** [21]

some countries, permanent eyebrow makeup treatment is reimbursed after cancer treatment. In Poland, more and more places offering permanent makeup services are charitably performing these procedures for cancer patients. Some foundations and associations for people affected by cancer cover the cost of permanent makeup [8].

To reduce post-operative stress, immediate reconstruction, or breast reconstruction concurrent with mastectomy, is being increasingly implemented (fig. 4). The procedure is covered by the National Health Fund and is determined by the physician based on the cancer type, its location, and stage of progression. Women who have experienced mastectomy of the mammary gland and breast reconstruction not infrequently think about nipple restoration. The medical pigmentation procedure reproduces the nipples using a chiaroscuro method, making the result look very realistic. The selection of pigment hue and nipple shape is personalised to ensure the appearance mimics that of an untouched breast. The procedure is devoid of pain. A professional linerigist must obtain written consent from the treating physician prior to the procedure.

ONCOCOSMETOLOGY – THE ROLE OF THE COSMETOLOGIST IN THE TREATMENT PROCESS

The terms oncocosmetology and oncocosmetics are increasingly prevalent in the literature. These areas enable interdisciplinary teams, consisting of doctors, nurses, physiotherapists, cosmetologists and representatives of cosmetic companies, to better support patients in the long process of oncological treatment and in restoring a better quality of life. Oncocosmetology, as a relatively new sub-discipline of cosmetology, is the science of body care options for people who are going through a difficult stage in their lives, which is oncological treatment. The specificity of the work of cosmetologists, who develop their professional competence in

this direction, is as important as the work of physiotherapists. Caring for the well-being of the patient is as significant as medical therapy.

An oncology-focused cosmetologist should possess empathy, extensive knowledge and experience, and the capability to collaborate with physicians and medical personnel. Understanding psychology and psycho-oncology will facilitate comprehension of the behaviours exhibited by individuals confronting cancer, thereby enhancing their care.

Healthy skin health extends beyond skincare and professional treatments. Lifestyle, adequate hydration, nutrition, physical activity, and stress significantly influence skin appearance. Implementing minor habits, such as adequate hydration, walking, or practicing breathing exercises, can enhance skin appearance, elevate mood, and subsequently benefit overall bodily health, thereby improving quality of life.

A cosmetologist can also serve as a health promoter. Regardless the robust advancement of medicine, the number of people with illnesses will rise. A cosmetologist who interacts with numerous women daily can inform and enhance awareness regarding the significance of prevention.

Nullifying the side effects of cancer treatment

An experienced cosmetologist can help an oncology patient deal with the side effects of therapy, often affecting physical appearance, mood and self-esteem. Oncocosmetology is a rapidly growing sub-discipline, as evidenced by the increased number of conferences and symposiums on the subject. Regardless of age and gender, cancer can affect



Fig 5 Project 'Beautiful despite everything' a) woman before the makeover, b) after the makeover **Source:** [7]

anyone. It not only affects the physical state, but also the psyche. The diagnosis itself and the subsequent effects of the disease and cancer treatment are a huge burden that can lead to depression, reduced self-esteem and attractiveness. 'However, the disease should not deprive you of the opportunity to take care of your health and well-being' [22]. In addition to the strictly skin-related aspect (soothing skin irritated by treatment), the psychological aspect is also important. For many affected women, being able to take care of themselves in a cosmetology salon is an important part of returning to normalcy. This helps not only to alleviate the side effects of treatment, but also to relax and unwind, which has a positive effect on the patient's mood.

Psycho-oncologist Adrianna Sobol notes that cancer verifies the way women think about themselves, rearranges the entire value system and affects every area of life, and while it may seem that taking care of a good appearance during treatment is a secondary matter, it is important to remember that it is an crucial step toward recovery [16].

Due to increased interest in oncocosmetology, more and more cosmetology offices are specializing in services for clients with cancer. Cosmetologists working in oncocosmetology often hold meetings for their oncology clients to raise awareness of skin care during treatment. In addition, foundations and associations working on behalf of women with cancer, in cooperation with specialists, organize events and projects through which women receive psychological support and knowledge of the side effects of cancer treatment. An example of such a project is the 'Beautiful despite everything' makeover. The originator is Dorota Rybarczyk, owner of the *Upiększarnia* beauty salon. In cooperation with the Light Foundation and the Academy for Fighting Cancer in Torun, a metamorphosis was carried out, consisting of permanent lip and eyebrow makeup, skin care for the face, hands and feet, consultation with a makeup artist and stylist, as well as a physiotherapist [fig. 5]. A woman who has overcome cancer twice attended the event. The participant emphasised that self-care during her cancer illness was crucial to the healing process. [7].

The increasing interest in cosmetology services among cancer patients presents numerous challenges for cosmetologists. Besides the evident benefit of aiding skin care and reducing the side effects of cancer treatment, a less apparent advantage pertains to the psychological aspect associated with interpersonal interaction. Information regarding cancer can instill fear and impede communication with the interlocutor. The topic of cancer is widely regarded as taboo, leading individuals to frequently struggle with appropriate behaviour and discourse surrounding it. In the oncology on-line portal *zwrotnikkraka.pl* are highlighted several tips for talking to an oncology client [8]:

- Do not bail out the affected person.
- Don't say 'Everything will be fine'.
- Don't take pity on the ill person.
- Don't underestimate the disease.

However, there is no single conversation pattern that will serve in every case. It is important not to close off the conversation with the person with the disease, not to be judgmental, avoiding the phrases 'I know how you feel' or 'it will be fine'. The cosmetologist should focus on solutions that are appropriate and safe for the client with cancer, which will help calm the changes caused by cancer therapy, as well as bring solace and allow relaxation. Knowledge of psychology and psycho-oncology is also invaluable [23].

SUMMARY

Oncological treatments frequently cause side effects that negatively affect the quality of life of cancer patients. Skin complications are sometimes the reason for modification or even discontinuation of oncological therapies, which translates into a decrease in their effectiveness. They also affect the self-esteem, and the sense of worth of those affected by the disease.

Oncocosmetology is the science of body care opportunities for people undergoing cancer treatment. The work of cosmetologists developing their professional competence in this direction is as important as that of physiotherapists. The cosmetology office serves as a place for enhancing beauty and body care, as well as increasing health awareness, education, and the cultivation of pro-health behaviours. A cosmetologist may also act as a health promoter, encouraging preventive assessments and the establishment of health and wellness habits.

REFERENCES / LITERATURA

1. Willis RA. *Spread of Tumors in the Human Body*. London: Butterworth-SCO; 1952.
2. Polskie Towarzystwo Onkologii Klinicznej. <https://ptok.pl/wazne-informacje-informacje-ogolne%20dost%C4%99p>. Accessed: 12.01.2024.
3. Krajowy Rejestr Nowotworów. <https://onkologia.org.pl/pl/epidemiologia/nawotwory-zlosliwe-w-polsce>. Accessed: 12.01.2024.
4. Nowotwory złośliwe w Polsce. Krajowy Rejestr Nowotworów. <https://onkologia.org.pl/pl/raporty>. Accessed: 15.01.2024.
5. Krzakowski M, Potemski P. *Działania niepożądane leczenia przeciwnowotworowego*. Gdańsk: VN Media Group Sp. z o.o.; 2020.
6. McKay J, Schaker T. *Chemioterapia. Poradnik dla pacjenta i jego rodziny*. Gdańsk: GWP; 2015.
7. Rybarczyk D. Kosmetologia onkologiczna. In: Kołodziejczak A. *Kosmetologia Tom 2*. Warszawa: Wyd. PZWL; 2020:109-122.
8. Zwrotnik Raka. <https://www.zwrotnikraka.pl/>. Accessed: 13.03.2024
9. Wiśniewski M, Graczyk M, Szpina M, et al. Popromienne zapalenie skóry – zasady postępowania. *Medycyna Paliatywna w praktyce*. 2013;7(2):41-45.
10. Michalewska J. Odczyn popromienne w radioterapii oraz popromienne zapalenie skóry. *Letters in Oncology Science*. 2017;14(4):104-109. <https://doi.org/10.21641/los.14.4.41>
11. Wiśniewska L, Karolska M. Doświadczenie choroby nowotworowej w relacjach kobiet po mastektomii. *Psychoonkologia*. 2017;21(3):75-85. <https://doi.org/10.5114/pson.2017.77296>

12. Langellier KM, Sullivan CF. Breast talk in breast cancer narratives. *Qualitative Health Research*. 1998;8(1):76-94. <https://doi.org/10.1177/104973239800800106>
13. Buszman K, Brandt A. Ciało poza społecznym kanonem piękna – ciało odrzucone: perspektywa osób o ciele „nieidealnym”. *Spółczesność i Edukacja*. 2016;1(20):225-237.
14. Lachowicz M, Etowska M. Poziom jakości życia kobiet po przebytym zabiegu mastektomii. In: Podgórska M, ed. *Choroby XXI wieku – wyzwania w pracy fizjoterapeuty*. Gdańsk: Wydawnictwo Wyższej Szkoły Zarządzania w Gdańsku; 2017:207-224.
15. Gacek E, Siwek M. Psychospołeczne funkcjonowanie kobiety po mastektomii. Część I. Subiektywna ocena wybranych aspektów życia przez kobiety po mastektomii. *Psychoonkologia*. 2018;22(3):90-95. <https://doi.org/10.5114/pson.2018.87888>
16. Sobol A. Poczucie atrakcyjności w przebiegu choroby onkologicznej. In: Klonowska J, Wolska A. *Pielęgnacja kosmetyczna pacjenta onkologicznego*. Warszawa: Wydawnictwo Wyższej Szkoły Inżynierii i Zdrowia w Warszawie; 2019:39-41.
17. Jarzynkowski P, Piotrkowska R, Witkowska A, et al. Jakość życia pacjentów z chorobą nowotworową leczonych metodą chemioterapii i radioterapii. *Pielęgniarstwo w Opiece Długoterminowej*. 2022;7(1):67-79. [https://doi.org/10.19251/pwod/2022.1\(6\)](https://doi.org/10.19251/pwod/2022.1(6))
18. Kosmopedia. www.kosmopedia.org. Accessed: 17.02.2024.
19. Matuła A, Załęska I, Lizak A, et al. Rola kosmetologa w diagnostyce oraz terapii nowotworowej. *Kosmetologia Estetyczna*. 2018;7(4):445-451.
20. Hencka-Zyser A. Wpływ zabiegów kosmetycznych na proces powrotu do zdrowia pacjenta onkologicznego – psychofizyczne aspekty zabiegów. In: Klonowska J, Wolska A. *Pielęgnacja kosmetyczna pacjenta onkologicznego*. Warszawa: Wydawnictwo Wyższej Szkoły Inżynierii i Zdrowia w Warszawie; 2019:37-38.
21. Zapala A. Pigmentacja brodawki sutkowej – aspekt psychologiczny. *Kosmetologia Estetyczna*. 2016;5(3):295-297.
22. Klonowska J. Opieka kosmetyczna nad pacjentami onkologicznymi realizowana przez kosmetologów w gabinetach kosmetycznych. In: Klonowska J, Wolska A. *Pielęgnacja kosmetyczna pacjenta onkologicznego*. Warszawa: Wydawnictwo Wyższej Szkoły Inżynierii i Zdrowia w Warszawie; 2019:16-20.
23. Wiśniewska K. Pacjentka onkologiczna w gabinecie kosmetycznym. *Kosmetologia Estetyczna*. 2023;12(1):111-113.

otrzymano / received: 23.08.2024 | poprawiono / corrected: 30.08.2024 | zaakceptowano / accepted: 06.09.2024