

Pain in cancer and psychological methods of its personalized correction

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Abstract

Physical pain can be a major component of cancer patient's suffering but suffering itself covers much more different sides of a human being than physical manifestations and often happens in the absence of physical pain. Suffering or total pain include physical pain, social pain, psychological pain and spiritual pain, which have a mutual influence on each other. The efficacy of treatment of total pain in cancer patients may be increased by additional use of psychological methods of its correction.

Key words: cancer; total pain; psychological pain; physical pain; psychological methods of correction

The rapid development of medical technology contributes to a rapid cure for many diseases, but humanity has not yet defeated all diseases, and they are often associated with pain. The pain associated with cancer still remains frightening and paralysing for most people today [9]. Waiting for pain blocks a person's ability to realize the need for medical attention, routine checkups and dispensaries, leading to late diagnosis of the disease. In ordinary consciousness, severe pain and cancer are so closely linked that the necessary measures for safe behaviour are simply displaced. This attitude towards pain is in many ways culturally and historically conditioned and supported not by a systematic approach in understanding the disease and treatment, but by the dominance of the biological approach. Without trying to underestimate the importance of physical pain for the patient and his family, we can not fail to

note that fear, disorganization of behavior, emotional disorders may appear in a person even before the onset of not only pain, but also the cancer itself. In cancer patients, these disorders greatly increase physical pain and are themselves a cause of suffering [4]. The aim of the article is to give an idea of psychological methods of coping with pain, describe their systematics and determine the place of psychocorrective methods in a complex approach to the treatment of pain in cancer.

Phenomenon of pain. A person's reaction to pain is determined by several factors, including individual and culturological features of a person, past experience, emotional state at the moment of pain syndrome, and circumstances under which it occurred. Scientists began to be engaged in pain as a phenomenon mainly since 50th years of XVIII century when there was interest to the person not only as thinking, but also as body perceiving creature. Before that, passions, suffering, and not pain were inscribed in the history of European culture. Pain was perceived as a given of religious and mythological consciousness as a torment from the imperfection of the world. In the culture of mankind compassion for pain first appears in the epoch of mature Middle Ages [7, 10]. Nowadays, the meaning of pain is largely formed through mass culture. "Live without pain" is an advertising slogan that encourages people to be always attractive, cheerful, joyful, ready to work and enjoy life. G. Khaidarova believes that this can lead to the loss of the skill of self-regulation of the body, the practice of experiencing and transforming pain, the lack of experience of empathy, fear of pain, and indirectly to the rejection of old age and disease. If a person cannot feel and experience his own pain, he will not be able to understand the pain of another person. According to G. Khaidarova, pain is a message that binds society: it is transmitted to a relative, warns, calls for sympathy and action [8].

Definition of pain. Pain is defined differently in different areas of human life. In literature, pain is a feeling of suffering. In medicine, as defined by the International Association for the Study of Pain (IASP), pain is defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described by the patient in terms of the conditions that characterize such damage". [6]. To date, there are several concepts of pain. The biomedical model of the disease associated with the name Descartes originates in the 17th century. According to this model, a patient's complaints can only be caused by specific symptoms due to biological changes. The concomitant signs of chronic diseases (pain, sleep disturbance, depression, psycho-social disorders) are considered as reactions to the disease and are considered secondary [2]. However, many articles have been published that provide evidence of the important role of psychological, behavioural and

social factors in the severity, persistence and exacerbation of pain [5, 6]. The biopsychosocial model of the disease developed in the late 20th century. According to this model, the theory of portal control of pain is considered, which combines physiological and psychological factors affecting pain. The author of this theory, R. Melzack expanded the theory of portal pain control by combining it with the theory of stress by G. Sellier. He suggested that nerve impulse patterns can be triggered by both sensory input and central, regardless of peripheral stimulation. This may explain why a person experiences pain in many chronic pain syndromes, even when no physical pathology is detected (13). A person in today's world cannot be separated from his or her environment: family, the work community, and society as a whole. Either of these areas can increase or decrease pain when chronic pain is involved. The biopsychosocial concept takes into account the full range of phenomena that lead to the chronization of pain. The proportion of biological, psychological and social factors may vary at different stages of the disease. The diagnosis of pain is one of the important tasks in the treatment and correction of pain syndrome. The World Health Organization (WHO) has defined several rules for the study and diagnosis of pain: believe the patient feels pain, talk to the patient about the pain, assess the intensity of pain, collect a detailed pain history, examine the patient's mental state, conduct a thorough physical study, consider alternative methods of pain treatment. Visual Analog Scale (VAS) and Numerical Rating Scale (NRS), as well as the McGill Pain Interview (MBM) are used to measure the intensity of pain syndrome [1, 3, 14].

The concept of total pain. The concepts of physical pain and suffering are often used terminologically as synonyms, but they are not the same. Physical pain may be a major component of suffering, but suffering involves much more different aspects of the human being than physical manifestations, and often occurs in the absence of physical pain. The differences between physical pain and total pain (suffering) are clinically important, as effective exposure often involves different interventions, including psychological ones. The concept of total pain was developed by the pioneer of the hospice movement Cecilia Sanders. She understood total pain to mean the intense suffering often experienced by dying patients and their families during the final months of life, dying, death and bereavement. Total pain includes at least four components: physical pain, social pain, psychological pain and spiritual pain. It is important that the components of total pain do not exist in isolation, but have a mutual influence on each other (4). For example, unresolved physical symptoms can lead to a narrowing of the patient's focus and cause emotional and spiritual pain by reducing the ability to interact with loved ones and address the psychological and spiritual problems associated with death. Deep suffering caused by spiritual, psychological and social pain may in turn

increase physical pain and cause symptoms such as nausea and shortness of breath. The main components of total pain are uncontrolled pain and other painful physical symptoms, as well as clinical depression, loss of hope and meaning, loss of important life roles, fear of death, severe existential experiences, loss of trust, unredeemed guilt, financial problems, family conflicts. To work with total pain, a multidisciplinary team is needed. Total pain should be assumed whenever we are dealing with life-threatening illnesses, but especially when the patient's physical symptoms are inexplicable and not usually covered by effective interventions, the response to treatment is unstable or the patient's emotional reactions seem inappropriate for the loss [15]. Psychological work on total pain generally uses expressive-supportive therapy with an existential focus. Interventions are aimed at assessing and maintaining the patient's hope, dignity, personal development tasks, and the restoration of the meaning of life (questions of purpose, value, effectiveness, and self-esteem).

Psychological pain. During the course of the disease, cancer patients experience significant losses and impairments: reduced mental and physical functioning, loss of control over their own body and emotions, loss of body parts, abandonment of familiar life roles, privacy, loss of sense of purpose, value, meaning of life. When a significant loss destroys the basic idea of predictability and justice of the world, most people experience a painful sense of isolation, brokenness and sudden loss of meaning of their existence. Adapting to loss is a process that involves restoring the destroyed world, recognizing loss through restoring meaning and gaining access to an expanded self-consciousness associated with the infinite flow of life rather than the previous limited range of roles. Successful adaptation to loss does not mean that a grieving person will never experience the sadness associated with loss. As patients go through a series of losses and losses, it is likely that they will experience the grief of loss again and again. Reactions to losses vary according to their nature, the patient's past experiences, the individuality of each person, their values and views on life. They can be expressed in physical sensations such as tightness in the chest or throat, cognitive and emotional disorders: distraction and concentration disorders, sleep disorders, existential experiences. All these disorders and impairments are part of the grieving process and are not considered pathological unless they lead to the patient's maladaptation or remain unchanged for months or years. But even normal reactions to loss can be so disturbing to the patient that they and their families may think these reactions are wrong. The consistently high levels of anxiety and depression experienced by many patients are not adaptive; they require active intervention, including short-term psychotherapy and taking tranquilizers and antidepressants.

A skilled intervention is needed each time anxiety or depression increases, disrupts patients' ability to function or lasts more than a week [15].

Physical pain. Methods of physical pain treatment are divided into pharmacological and non-pharmacological. There is no doubt that patients with moderate to severe chronic pain in cancer should receive opioid-based medication. Non-pharmacological strategies include three groups of methods: treatment aimed at the cause of pain (radiation therapy), aggressive symptomatic methods (nerve blockades), non-invasive symptomatic methods. The practical recommendations of the American Pain Society recognize the role that both pharmacological and non-pharmacological approaches can play in alleviating pain in cancer patients [12]. Among non-pharmacological approaches for use in cancer patients, two types of interventions are recommended: pain management training and information. Training-based interventions are aimed at changing the way patients interpret pain (e.g. reducing the catastrophization of pain) and the practice of certain pain management approaches (e.g. deep muscle relaxation). The information is usually instruction on how to use pain medication and how to inform the doctor about the unbearable pain. In some patients, non-pharmacological strategies may provide sufficient pain relief without the side effects of the medication and better results for physical and psychosocial functioning [16]. In 2014, S. Gorin, P. Krebs, H. Badr et al. evaluated the effectiveness of the psychosocial approach to pain in cancer and presented meta-analysis results. It included 37 randomized studies of various psychosocial interventions in 4,199 oncological patients. Psychosocial interventions included cognitive behavioral techniques, relaxation training, information, hypnosis, image desensitization, biofeedback and other learning-based techniques. Studies that used alternative therapeutic methods such as massage or biofield methods as primary treatment were excluded. Changes in pain intensity and interference (the effect of pain on daily life) were the main criteria for evaluating effectiveness. The intensity of pain was reduced by 34% and the interference of pain was reduced by 40%. The results of the meta-analysis confirm the need for systematic introduction of psychosocial interventions as part of a multimodal approach to pain management in cancer patients taking into account quality control [12].

Psychological methods of pain correction, along with rehabilitation methods, belong to non-pharmacological non-invasive methods. E. A. Strada, R. K. Portenoy present the results of more than 70 randomized studies, which confirm the effectiveness of psychological impact on pain associated with cancer [16]. The authors point out that most psychological methods were originally created for patients with chronic non-malignant pain and later applied in the treatment of cancer patients. The success of psychological methods in treating cancer pain,

according to these authors, supports the conventional notion that pain impairs psychological functioning, that psychological functioning affects pain and pain-related suffering, and that neither pain nor suffering can ever be considered solely the result of nociception (nerve fibre pain). The individual response to pain can be determined by the importance given to feelings of pain, past experiences, levels of anxiety and depression and other psychosocial factors. Addressing the thoughts and emotions associated with pain experiences can help reduce stress, anxiety and other mood disorders associated with pain [15]. Psychological methods, along with rehabilitation and integrative methods, refer to non-invasive symptomatic methods of pain correction and are divided into two large groups: cognitive-behavioural therapy and psychophysical methods. Cognitive behavioural therapy (CPT) addresses the challenges of developing a sense of control over disease and its consequences and reducing the impact of pain on everyday life. It is a structured approach that involves the patient in setting and controlling specific goals. The therapy process includes patient education, behavioural training and cognitive skills training.

Psychophysical methods are based on training to consciously influence physical functions by changing cognitions or emotional states. These therapies are usually seen as complementary to CPT medication or used in conjunction with other non-invasive therapies. However, psychophysical methods are sometimes offered separately as a specific treatment for a discrete problem, such as pain associated with a particular procedure. They are designed to reduce pain and anxiety and increase self-control. Patients who have been trained in these methods may continue to use them for extended periods of time, often without additional support or only with separate control sessions. It should be noted that psychophysical methods of treatment are sometimes classified under non-traditional and alternative medicine [11]. However, methods such as relaxation training, imagination-directed learning, hypnosis and biofeedback are not alternative therapies, but rather should be considered the predominant pain management direction used in addition to other approaches. In some cases, these interventions have more evidence of efficacy than most other traditional medicine methods [16].

Relaxation therapy. Relaxation methods are aimed at triggering a relaxation reaction characterized by reduced activation and reduced sympathetic activity. It is accompanied by a lower heart rate, lower blood pressure and an increase in the proportion of alpha rhythm. The reaction of relaxation is achieved by focusing on the word, sound, body sensation or muscle activity and taking a passive attitude towards invading thoughts. The methods of relaxation can be divided into deep and superficial. The following strategies are used: progressive

muscle relaxation, autogenic training, breathing training. Currently there is not enough data to identify one of the techniques for efficiency. When relaxation is used, there is a small risk of adverse reactions: intrusive thoughts, fear of losing control, loss of balance, muscle spasms, sexual arousal and psychotic symptoms, as well as anxiety or panic. This fact must be taken into account when using this method. Side reactions may occur in patients with generalized anxiety or panic disorder in their history, with experience of hyperventilation.

Visualization is a verbal technique that involves working with images, their creation, transformation and conscious change. It is used for a variety of purposes, including changing the experience of pain. Other techniques such as distraction, mental dissociation, muscle relaxation, diaphragmatic breathing can also be used in visualization. To date, there are no data on the specificity of images within individual organs and physiological systems. For clinical purposes, imaging usually falls into one of three categories: diagnostic imaging, image-based mental elaboration and directed imagination. Hypnotic analgesia is a concentrated state of concentration with some suspension of peripheral awareness. The main components of the hypnotic state are: absorption (the ability to deeply examine a chosen topic or focus), controlled attention changes, dissociation (the ability to distinguish different aspects of a particular experience), suggestibility (the ability to respond to instructions in an intensified manner). Patients vary greatly in their ability to achieve hypnotic state. Cooperation and suggestibility are important foundations of hypnability. To alleviate possible difficulties, patients should be assured that hypnosis cannot cause behavior that is not desirable or that is contrary to patient values. Hypnosis can cause relaxation, decrease anxiety and increase pain thresholds. As a result, the perception of pain changes, discomfort decreases, and attention is redirected from the painful feeling to another area of the body [16].

Biofeedback is the learning to manage your physiological reactions to pain and stress under the control of your mind. Sensors record one or more physiological indicators that correlate with the patient's condition. These may be a Surface Electromyogram (EMG) that records muscle tension in a given muscle, respiratory parameters, heart rate, brain rhythms in a given range (alpha rhythm is recorded for relaxation purposes), skin-galvanic response, peripheral temperature. The patient sees the change in the indicator on the screen in real time and learns to control his physiological reaction. Biofeedback can teach healthier behavioral and cognitive reactions to pain and stress. EMG biofeedback, for example, targets muscle groups related to the patient's pain response. Relaxation of these muscles helps to induce a general relaxation reaction, which may further change the perception of pain or reduce anxiety. Biofeedback can be used for any motivated patient with pain or anxiety, provided

there is a resource and opportunity to participate. A study of 37 patients with advanced cancer and chronic pain who were assigned an EMG to train their relaxation, supported by biofeedback, found that this training was effective in alleviating cancer-related pain, while in the control group the pain increased [16]. Patients with chronic or recurrent depression may respond negatively to stress reduction methods that tend to reduce the patient's already low levels of activation.

Integrative methods are a combination of all of the above and any number of non-conventional or alternative medicine methods whose mechanism of action is not scientifically explained, and their effectiveness has not been proven to date and may be comparable to placebo effects. Such methods include meditation, prayer, creative art therapy (except music therapy), biofield methods, including therapeutic touch, manual interventions, massage, acupuncture and homeopathy. However, if the patient wants to receive such treatment provided that he or she has sufficient resources (physical, temporal, material) and the attending physician sees no harm from its use, there is no reason to prevent their use. Thus, from the above it follows that the pain in cancer patients is always total, it is multidimensional in nature and there is not only a physical component, but also psychosocial and spiritual; pharmacological methods of physical pain treatment are the main ones in cancer diseases; the effectiveness in treating total pain in cancer patients can be increased by the use of additional psychological methods of therapy: such non-pharmacological strategies have less side effects than pharmacological ones and they provide better results regarding physiological and psychological functioning.

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