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PAIN QUESTIONNAIRE "PAINDETECT" AS A WAY TO OBJECTIFY THE NEUROPATHIC COMPONENT OF THE PAIN SYNDROME

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Introduction. The phenomenon of pain is extremely common in Ukraine today, both among military personnel and civilians. The problem of objectification and therapy of pain is multidisciplinary. Pain is multifactorial: biological, psychological and social factors contribute to the development of pain syndrome. The problem of pain disorders during martial law in Ukraine is extremely acute and relevant. The problem of diagnosing and treating pain disorders should be handled by a multidisciplinary team, with a neurologist and a specialist in the treatment of mental disorders being among the key members.

The aim of the study was to describe the diagnostic value of the painDetect questionnaire for physicians in Ukraine, to consider the possibility of using it in the Ukrainian language version, and to present our own experience of its use in the Ukrainian population for patients with neuropathic pain disorders.

Materials and methods. The study involved 62 male patients who had a history of gunshot shrapnel wounds of the extremities of various localizations and suffered from chronic pain lasting more than 3 months at the time of the examination.

Results and discussion. Based on the results of personal experience of using the painDetect questionnaire among the Ukrainian population, it was concluded that this questionnaire is a reliable and convenient tool for assessing the intensity of pain and determining the presence of a neuropathic component of pain syndrome.

Keywords: pain syndrome, chronic pain, neuropathic component, painDetect questionnaire, wound.

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ОПИТУВАЛЬНИК ЩОДО БОЛЮ "painDetect" В ЯКОСТІ СПОСОБУ ОБ'ЄКТИВІЗАЦІЇ НЕЙРОПАТИЧНОГО КОМПОНЕНТУ БОЛЬОВОГО СИНДРОМУ

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Феномен болю на сьогодні є надзвичайно поширеним явищем в Україні, як серед військовослужбовців, так і серед цивільного населення. Проблема об'єктивізації та терапії болю є мультидисциплінарною.

Метою роботи було дослідження діагностичної цінності опитувальника painDetect для лікарів в Україні, розгляд можливості його використання в україномовній версії та висвітлення власного досвіду його застосування в українській популяції для пацієнтів із нейропатичними больовими розладами. До дослідження було залучено 62 особи чоловічої статі, які перенесли в анамнезі вогнепальні осколкові непроникні поранення кінцівок різної локалізації та страждали на хронічний біль.

Отримані дані свідчать, що опитувальник painDetect є надійним і зручним інструментом для оцінки інтенсивності болю та визначення наявності його нейропатичного компонента в практиці лікарів, які не є спеціалістами з неврології чи нейрохірургії.

Ключові слова: больовий синдром, хронічний біль, нейропатичний компонент, опитувальник painDetect, поранення.

Introduction. Pain accompanies human life. Since the beginning of its existence, humanity has suffered from pain in historical, religious, cultural, social and, of course, physical contexts. Moreover, there are no prospects that the phenomenon of pain will cease to be relevant. Everyone from childhood to old age knows what pain is from their own experience. It is not possible to talk about the phenomenon of pain in an absolute, physical sense. Pain appears as a multidimensional concept, encompassing an objective and subjective approach, the concept of the brain in terms of anatomy and neurology, and a system of views on consciousness, self-awareness, and the peculiarities of sensation and perception in psychiatry. In the context of pain, one cannot separate physical and mental determinants.

According to the definition of the International Association for the Study of Pain (IASP), pain syndrome (PS) is an unpleasant subjective sensation and emotional experience associated with actual or probable tissue damage [1].

Pain is multifactorial: biological, psychological and social factors contribute to the development of pain syndrome [2]. The problem of pain disorders during martial law in Ukraine is extremely acute and relevant.

One of the tasks of medicine is to relieve people of pain. At first sight, anesthesiologists take care of the problem [3]. Anesthesia or anaesthesia (from Greek "without sensation") is a state of controlled, temporary loss of sensation or awareness induced for medical purposes like surgical or painful procedures. It may include some or all of the

following: analgesia (relief from or prevention of pain), immobility (muscle relaxation), amnesia (loss of memory), and unconsciousness [4, 5].

Anesthesia as a sensory disorder is also one of the symptoms of neurological diseases [6]. An interesting and unexplored issue is psychic anesthesia, which is closely intertwined with pain and other types of sensitivity and their disorders. Psychopharmacotherapy is actively prescribed and demonstrates its high effectiveness in pain disorders of various genesis.

Therefore, it is undoubtedly anesthesiologists who are the leading specialists in pain management when surgical interventions are required. However, when it comes to diagnostic, therapeutic and rehabilitation issues related to pain, anesthesiology cannot be given a clear preference. The problem of diagnosing and treating pain disorders should be addressed by a multidisciplinary team, in which a neurologist and a specialist in the treatment of mental disorders are not the least important.

Currently, doctors have the opportunity to use a wide range of questionnaires and scales to determine various aspects of pain sensitivity. One of the most demonstrative and easy-to-use is the painDetect questionnaire, which has been translated into many languages and is relevant among doctors of various specialties to determine the neuropathic component of pain [7–10].

The aim of the study is to highlight the diagnostic value of the painDetect questionnaire for physicians in Ukraine, to consider the option of using it in the Ukrainian language version, and to present our own experience of its use among the Ukrainian population for patients with neuropathic pain disorders.

Materials and methods. No data on the translation and adaptation of the painDetect pain questionnaire into Ukrainian were found in the literature. As a result, we translated the procedure and attempted to adapt this questionnaire taking into account generally accepted recommendations regarding cross-cultural adaptation of research instruments [11, 12].

Study design. The translation of the scale and its use was carried out under the supervision and with the permission of the Biomedical Ethics Commission of Poltava State Medical University (Protocol No. 227 as of 23.05.2024) as part of the initiative research and development work "Neuro-psychological features of pain phenomena in organic lesions of the nervous system and psyche as a result of combat actions", state registration number 0124U003351. All patients involved in this study provided informed consent to participate. The study was conducted in accordance with the requirements and principles of the World Medical Association Code of Ethics (Declaration of Helsinki).

At the beginning of the study, you need to fill out the part of the questionnaire indicating the date of the survey, the patient's last name and first name. The first part of the questionnaire contains three questions that focus on assessing pain intensity. First of all: "How would you assess your pain now, at this moment?"; second: "How strong was the most severe pain you experienced during the past 4 weeks?"; the third: "How strong was the pain during the past 4 weeks on average?". Each question is scored on a 10-point linear scale, where "0" means no pain and is indicated by the statement "none"; "10" means maximum pain intensity "max". This is the subjective quantitative assessment of pain by the patient.

The second part of the painDetect questionnaire contains three blocks, the questions of which are aimed at conducting a qualitative assessment of neuropathic pain. The first block contains four questions about the kind of pain with graphical modeling of pain sensations, namely: 1) persistent pain with slight fluctuations; 2) persistent pain with pain attacks; 3) pain attacks without pain between them; 4) pain attacks with pain between them. In this block, the possible number of points can vary from –1 to +2 points, depending on the selected pain visualization chart. The main task of the questions in the second block is to determine the irradiation of pain to other parts of the body with graphic interpretation, the patient is asked to shade in the picture one part of the body where he or she feels the most severe pain and indicate the presence or absence of pain irradiation to other parts of the body, as well as the direction of pain irradiation. A positive "yes" answer about the presence of pain radiation corresponds to 2 points, a negative answer indicates the absence of pain radiation to other parts of the body and corresponds to 0 points.

The third block contains a description of neuropathic pain descriptors and determines the degree of their intensity. This block is based on the patient's subjective feelings about the pain syndrome. The numerical result of this block is the derived value of the noted positive and negative symptoms of neuropathic pain, which act as verbal descriptors. Positive symptoms include sudden pain, paresthesias, and dysesthesias, with burning, tingling, piercing pain, or allodynia being the main complaints. Negative symptoms include loss of sensation, numbness, analgesia, and anesthesia. Below is a list of questions suggested to the patient to determine the descriptors of neuropathic pain: 1) Do you suffer from a burning sensation (e.g., stinging nettles) in the marked areas? 2) Do you have a tingling or prickling sensation in the area of your pain (like crawling ants or electrical tingling)? 3) Is light touching (clothing, a blanket) in this area painful? 4) Do you have sudden pain attacks in the area of your pain, like electric shocks? 5) Is cold or heat (bath water) in this area occasionally painful? 6) Do you suffer from a sensation of numbness in the areas that you marked? 7) Does slight pressure in this area, e.g., with a finger, trigger pain? All questions have the same set of answers, namely: never, which is rated 0 points; hardly noticed – 1 point; slightly – 2 points; moderately – 3 points; strongly – 4 points; very strongly – 5 points.

The total score is the sum of all the points obtained during the patient's survey. The results of the pain examination are recorded on the form. The maximum possible number of points is 38. A score of 0 to 12 points indicates that the presence of a neuropathic component of pain is unlikely (< 15%), 13–18 points are considered as "result is ambiguous, however a neuropathic pain component can be present", a score of 19–38 points indicates "a neuropathic pain component is likely" (> 90%).

Personal experience with the painDetect questionnaire. The study group included 62 men. Participants were recruited at the Poltava Regional Clinical Hospital named

after M.V. Sklifosovsky of the Poltava Regional Council between 2022 and 2023. After filling out and signing the informed consent to participate in the study, patients were examined by a neurologist and a research physician under the supervision and with the participation of a painDetect questionnaire [9, 13] in the author's translation for the Ukrainian population after consultation with two independent experts in linguistics and native English speakers who were not familiar with the original text. Demographic information about the participants was also obtained, including their age at the time of participation in the study.

Statistical analysis of the results was performed using well-known methods of variation statistics in the SPSS22 software package (©SPSS Inc.). Reliability analysis of the author's translation of painDetect was assessed by the degree of internal consistency of the questionnaire by calculating Cronbach's alpha coefficient.

Results. A total of 62 people (n = 62) were included in the study, all male (100%), aged 34 to 54 years. The average age of the participants was 42.17 years. All patients had a history of gunshot shrapnel wounds of the extremities of various localizations and suffered from chronic pain lasting more than 3 months at the time of the examination: 24 patients (38.71%) had upper extremity wounds, 34 patients (54.84%) had lower extremity wounds, and 4 patients (6.45%) had combined wounds involving the upper and lower extremities (Table 1).

The range of painDetect scores ranged from 24 to 34 points, indicating the presence of a neuropathic pain component in all participants. The average total score on the questionnaire was 28.83 points. The Cronbach's alpha internal consistency coefficient was 0.82 for the questionnaire, indicating good reliability and consistency.

Discussion. Pain is a multidisciplinary problem. It is difficult to find a doctor's specialty that has not been visited by a patient complaining of pain. However, despite the great progress in diagnostic and clinical medicine, the subjective side of pain remains fundamental in its sensation and description by patients visiting doctors of different specialties – neurologist, surgeon, traumatologist, dentist, gastroenterologist [14]. This list could go on for a long time, listing different medical specialties.

When specialists dealing with the "somatic" component of pain after numerous functional and laboratory tests, the appointment of multidirectional anti-inflammatory, analgesic and other therapies fail – then the patient is referred by them to a psychotherapist or psychiatrist, as psychosomatic, emotional and other disorders of the mental sphere are often manifested by a variety of unpleasant and painful sensations [15, 16]. Reduction of pain syndrome against the background of psychotropic therapy is another strong evidence of the presence of a psychoemotional component in the sensation of pain [17–19].

Due to the heterogeneity of pain in terms of its duration, anatomical manifestation, etiology, intensity, and pathophysiology, there are many ways to classify it. In the pathophysiological aspect Pain can be classified as nociceptive, neuropathic and central sensitization (nociplastic). According to the time parameters, acute and chronic pain (lasting more than three months) are distinguished. According to the IASP definition, acute pain occurs suddenly, begins acutely and intensely, and is a harbinger of a disease or threat to the body. It can be caused by trauma, surgery, illness, or medical interventions and usually lasts from a few minutes to three months. Acute pain usually disappears after treatment or healing of the underlying cause. Chronic pain is pain that persists or recurs for more than 3 months. Such pain often becomes the only or predominant clinical problem in some patients and may require special diagnostic evaluation, therapy, and rehabilitation. Chronic pain is a fairly common disorder that affects approximately 20% of people worldwide [20].

The painDetect questionnaire was developed and prevalidated for patients with back pain and has since become a widely used, reliable screening tool for diagnosing and predicting the likelihood of developing neuropathy. PainDetect is a convenient method of pain assessment that does not require a physical examination of the patient, which is key in the practice of doctors who are not specialists in neurology or neurosurgery. This questionnaire can be used by doctors of various specialties, including general practitioners – family medicine, psychiatrists, therapists, rheumatologists. This list can be continued for a long time, because most doctors, in the general sense of the profession, examine and treat patients with pain syndrome. The painDetect questionnaire is highly sensitive (85%) and specific (80%) [8].

Table 1

Characteristics of shrapnel wounds localization among the surveyed population

№	Level of wounding	Number of cases	%
1.	The upper limb, including:	24	38.71
	- shoulder region	17	27.42
	- regions of shoulder and forearm	6	9.68
	- region of hand	1	1.61
2.	The lower limb, including:	34	54.84
	- hip region	12	19.35
	- regions of hip and shin	7	11.3
	- knee region	3	4.84
	- shin region	9	14.52
	- regions of shin and foot	1	1.61
	- foot region	2	3.22
3.	The upper and lower limb (combined injury to the shoulder and shin)	4	6.45

Conclusions. The phenomenon of pain is extremely common in Ukraine today, both among military personnel and civilians. The problem of pain objectification and therapy is a multidisciplinary one. Based on the results of personal experience of using the painDetect pain questionnaire in the Ukrainian population, it was concluded that this questionnaire is a reliable and convenient tool for assessing the intensity of pain and determining the presence of a neuropathic component of pain syndrome. In the future, it is planned to validate and adapt it for the Ukrainian-speaking contingent of patients suffering from pain disorders.

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