

# The problem of pain in old age

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## Abstract

The elderly are more susceptible to feeling pain than young people. Pain is described as a complex, subjective feeling causing significant limitation of physical, psychical and social functioning. In the literature, there are many classifications of pain. Considering the duration, pain may be divided into acute and chronic. Acute pain does not depend on age and lasts less than three months whereas chronic pain is more frequent with the elderly and lasts more than three months. It can be divided into nociceptive and neuropathic pain. Involutional changes progressing in the organism of an old person, combined with numerous chronic diseases occurring in old age, cause approx. 85% of the elderly to suffer from pain. Among the diseases with concurring pain, the first are diseases of the locomotor system and include: osteoporosis, osteoarthritis, and rheumatoid arthritis. Moreover, pain is an intrinsic part of malignant cancer, neuralgia shingles, and diabetic neuropathy. Pain also conceals depression and the depression intensifies the feeling of pain. Due to frequent cognitive disorders and depression, the measurement of pain in the elderly is difficult, it thus requires vast experience. To assess the pain intensity, subjective scales are used, e.g. verbal scale, score scale. To assess the qualitative and quantitative scales the following questionnaires are used: McGill-Melzak Pain Questionnaire and the Pain Assessment Form. Significant for pain assessment with people diagnosed with dementia are objective pain symptoms, namely: worsening appetite, gnashing teeth, grimaces. Pain treatment should be multimodal and include usage of both pharmacological and non-pharmacological methods. Pharmacology is the basis for pain treatment in people of old age, which should be used in the least invasive way, starting with small dosages. The pain-relieving medicine of first choice is paracetamol. In the pharmacological treatment of old people there are also non-opioid pain relieving medicine, opioids and supportive medicine. Among non-pharmacological treatments are rehabilitation and psychological therapy. In pain treatment, awareness among the elderly, their families and carers, and medical staff that the pain is not an attribute of old age; thus, it can be correctly diagnosed and treated.

## Key words

pain, people in old age, pain treatment in the elderly

## INTRODUCTION

Old age predisposes the occurrence of chronic and wasting diseases with one dominant symptom being pain [1]. Pain, in accordance with the definition by the International Association for the Study of Pain, is described as an 'unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage' [2, 3, 4]. Pain is a complex, subjective feeling which can significantly limit psychical and physical activity, may lead to anxiety and fear for one's own life, and may prevent reception of any other sensations [3]. The sensation of pain is caused by sensory stimulations and are modified by memory, expectations and emotions [4]. There are many classifications of pain, namely:

- physical – informing on tissue damage, occurring as stubbing, burning or tearing stimuli;
- emotional – indicating emotional disorders, indicated by sadness, depression, guiltiness and fright;
- psychical – indicating psychical imbalance, indicated by abashment or disorientation;
- existential – emerging as a result of disintegration of individual integrity, as a whole, indicated by a form of despair, existential shame, guiltiness, severe fright. Differs

from the form of emotional pain in depth and has a higher level of threat to existence as a whole;

- relational – emerging when human relationships are disrupted; may be in the form of emotional, psychical and existential, or a combination of thereof [3].

Considering the duration, pain may be divided into acute and chronic.

- Acute pain indicates the tissue damage or the threat of such, is time limited – does not last more than three months and does not have long-term effects on the quality of the patient's life. It occurs as a preliminary or associated symptom with many diseases; hence, it is not treated in clinical practice prior to diagnosis. Acute pain is accompanied by symptoms of the vegetal system including increased blood pressure and heart rate, deepened breathing, enlarged pupils, increased muscle tone [3, 5]. Its concurrence is not related to age [1]. The key characteristics of acute pain are warning and protecting against tissue damage, or protection and a precaution for people with existing tissue damage. Acute pain usually withdraws within a few to several days. Lack of or improper treatment may lead to transformation of acute pain into chronic pain [6].
- Chronic pain, in accordance with the definition of the Commission of Acute Pain in Elderly People of the American Geriatric Society, is a pain without any tissue damage, lasting more than three months [5]. Its frequency increases with age [1]. Chronic pain affects 41% of people

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aged between 65 – 75, 48% of people aged between 75 – 84, and 55% of people over 85 years of age [1]. It occurs among 45% – 80% of people residing in nursing homes [5]. Research carried out in 15 countries in Europe and in Israel indicated a high propagation of chronic pain and its influence on the quality of patients' lives, and high encumbrance to medical sector [7]. Cancer is a common cause of chronic pain. It is experienced by 2/3 of patients in the terminal stage and by 1/3 of patients in the early stage of cancer [6]. The concurring symptoms include insomnia, lack of appetite, anxiety, problems with contacts with friends, decreased interests, gradual increase in despondence, despair, and lack of meaning of life [3].

A special type of pain is called 'total pain', also referred to as 'pervasive pain'. This is a multi-type pain, combining the elements of acute and chronic pain, occurring mainly in people diagnosed with malignant cancer or other lethal diseases [8].

As for anatomical criteria, chronic pain may be divided into receptive (nociceptive) and non-receptive (neuropathic).

Receptive (nociceptive) pain results from stimulation of pain receptors. It may occur as somatic or visceral pain. Somatic pain comes from deeper tissue or skin tissue – e.g. pain resulting from bone fracture, muscle spasms, joints pain. Visceral pain results from damage to an organ, system or tissue (e.g. pleura, peritoneum). Nociceptive pain is commonly described as dull, gnawing, extensive [5, 8];

Non-receptive (neuropathic) pain results from lowering the stimulus level of nociceptives or by damaging the circumferential or central nervous system. It may be caused by nerve damage during surgery, radiotherapy, medicine or advancing disease. An example of neuropathic pain may be neuralgia, radicular or phantom pain. Neuropathic pain is described as burning, tingling, electrical, stabbing, heat wave, pins and needles [8, 5].

In practice, it is common for chronic pain to possess the characteristics of both nociceptive and neuropathic pain; thus, it is often impossible to classify it into only one category [5].

**Objective.** The aim of the study is to present the frequency of occurrence, classification and treatment of pain in old age, based on the analysis of literature on the given subject.

## INTRODUCTION

Research has proved that with age the sensation and reaction to pain changes, the causes of which remain unclear [9]. In accordance with many authors, in old age the pain threshold is increased [10, 11, 15]. In the elderly, lowered reaction to slight pain and increased sensitivity towards severe pain is observed. In old age there are functional, structural and biochemical changes to the circumferential nervous system, lowered density of myelinated and unmyelinated fibres, and neuronal damage, leading to worsening functioning, lowered concentration and circulation of neurotransmitters involved in nociceptive the processes [9, 1].

People in old age are more prone to chronic pain. Involuntary changes of the organism and concurrence of chronic diseases favour such phenomena. The research results indicate that approx. 85% of the elderly suffer from pain [5].

Among the diseases with concurring pain, the most significant are diseases of the locomotor system, which affect about 80% of the population over 70 years of age [1, 12]. These include: osteoporosis, osteoarthritis, rheumatoid arthritis, and polymyalgia rheumatica [1, 13, 14]. With osteoporosis, the pain is most frequently caused by vertebral fracture, is sudden, located in the thoracic-lumbar area, and lasts for up to few weeks [15]. Pain in rheumatoid arthritis is most often chronic, occurs and intensifies with performing even basic activities. With rheumatoid joints inflammation, polymyalgia rheumatic, rest pain may be observed [16]. With osteoarthritis, the pain is caused by pressure of disease-related structure changes of the neurovascular bundle or reflexive muscular contraction. It is often very severe and thus reduces mobility [17].

With people in old age the pain is located in the areas of joints, back and lower limbs [1]. People in the old age residing at home more frequently suffer from pain of the joints, lower limbs and spine, whereas people residing in nursing homes suffer from pain of the joints, fractures and cancer [5].

The main cause of pain sensation with people in old age is related to the locomotor system. These pains are degenerative, and in proliferative changes and demyelination of osteoarticular system; also, non-organic causes such as fear and depression play a significant role [9]. A serious cause of locomotor system injuries are falls classified as 'significant geriatric symptom'. They are caused by involuntary changes of the central nervous system, worsening sight, hearing and balance [10, 13].

Another geriatric problem related to pain is depression [1], which affects approx. 15% of the population over 65 years of age. Very often, the incidence among the elderly is the occurrence of cryptic depression [18], and masked pain manifested by chronic pains located in innervated sacral plexus, brachial, ischiatic, intercostal and cranial areas. Pain in depression may be located in the occiput area and may radiate towards brachial and nucha. It may be a dull, continuous pain, felt as a pressure or weight. In cryptic depression, pain may also be in the form of paresthesia, burning, tingling, stiffing, feeling of cold feet and ankles [19]. Many authors have proved the relationship between depression and occurrence of pain [1, 5, 19]. Chronic pain, improperly treated, may lead to the creation of depression, and the depression intensifies the feeling of pain, thus creating a 'vicious circle' [5, 1].

A frequent cause of pain in people in old age is related to neuralgia, shingles, and diabetic neuropathy, leading to the creation of neuropathic pain manifested by burning, tingling, heat wave, pins and needles, itching [5].

Pain assessment with people in old age is difficult and requires vast experience. To assess the pain the following must be considered: localization, intensity, timing, quality (character) and reactions to pain [20, 5].

*Assessment of pain localization* is a base for preliminary pain diagnosis. With people in old age with cognitive disorders and depression the correct description of pain areas is difficult [20, 5]. It is helpful to draw a sketch the body on which the patient marks the painful areas [21].

*Intensity of pain* is related to various factors, namely: age, gender, race, condition of the nervous system, general health condition, and sensitivity to pain stimuli [19]. To assess the intensity of pain, the following subjective scales may be helpful:

- verbal scale – containing various expressions of the pain, such as ‘no pain’, ‘slight pain’, ‘moderate pain’, ‘severe pain’ [21, 5];
- score scale – the patient is asked to assess the pain intensity in the last 24 hours, where 0 means no pain and 10 the worst pain a patients can imagine [5, 20, 21];
- Functional Pain Scale – can assess the pain intensity and its influence on everyday activities. In accordance with this scale, ‘0’ means no pain with no influence on everyday activities; ‘1’ means tolerable pain with no influence on everyday activities; ‘2’ means tolerable pain which influences everyday activities; ‘3’ means intolerable pain which does not prevent a telephone conversation, watching television, or reading; ‘4’ means intolerable pain which prevents a telephone conversation, watching television, and reading; and ‘5’ means intolerable pain which prevents verbal communication.’

*Timing of pain* enables defining whether pain is acute or chronic, paroxysmal or continuous, spasmodic or continuing [20, 5].

*Quality of pain*, its character may be described as itching, burning, radial, bursting, spastic, tearing [20, 5].

Multi-elementary method of pain assessment concerning localization, character, frequency and intensity is the McGill-Melzack Pain Questionnaire [5, 8]. Another questionnaire to assess quantitative and qualitative scale of pain is the McGill-Melzak Pain Questionnaire – MPQ. A simplified Polish version of the McGill-Melzak Pain Questionnaire is the Pain Assessment Questionnaire (in Polish: Arkusz Oceny Bólu – AOB) [8].

A significant problem which impedes pain assessment with people in old age is dementia, which is believed to have affected 3% – 11% of people of over 65 years of age, and over 20% – 50% of the population over 85 years of age [13]. Patients with cognitive disorders may not be able to communicate their pain. Therefore, it is utterly important to pay attention to the following symptoms which may indicate pain sensation: worsening appetite, anxiety, insomnia, agitation, grimaces, gnashing teeth, sighing, moaning, deep breathing, resistance to nursery activities.

For people with speech disorders, pain assessment may be accompanied by visual scale representing faces – from happy to bursting into tears, and questionnaires including questions with ‘yes’ or ‘no’ answers [5].

In pain assessment, the awareness that pain has significant influence on the patient’s life is very important; thus, physical fitness and limitations, social support and treatment strategies must be predefined. The emotional and psychophysical influence of pain on the experiencing person must not be omitted. The reactions to pain include: fear, angst, anger, insomnia and loneliness [5].

In accordance with recommendations of the International Association for the Study of Pain, pain treatment should be multimodal, including not only somatic aspects but also psychological, social and recreational [1]. Pain treatment should include usage of both pharmacological and non-pharmacological methods [5].

Pharmacology is the basis for pain treatment in people of old age [1, 10]. The recommendations of the American Geriatric Society in 2002, indicated the following:

- usage of the least invasive way of application;
- if possible to choose medicine with lasting effects, including

small dosages which may slowly be increased;

- to leave longer intervals between introducing new medicine, to properly assess effectiveness;
- to constantly monitor and modify treatment to reduce unwanted side-effects and increase effectiveness;
- if necessary to implement rotation of opioids [9].

The pain-relieving medicine of first choice for the pharmacological treatment of people in old age is paracetamol (analgesic). It is used specifically with muscle-skeletal pains of slight to mild intensity. It may be supported with weak opioids, such as codeine or tramadol. Due to hepatotoxic and nephrotoxic effects, it is advisable not to exceed the daily dosage (4mg, and less with liver diseases) with concurrent control of liver functioning [1, 10, 22, 23].

Another group of medicines used in pain treatment are non-steroid anti-inflammatory medicines (NLPZ) used mainly with muscle-skeletal pains, and cancer pains with bone metastasis [1]. It is advised to use a very cautious approach in application with people in old age. Long-term application of medicine exceeding maximal daily dosages may cause numerous side-effects, including: digestive system complications, psychic disorders, coagulation disorders, kidney failure, thromboembolic complications, and congestive cardiac failure [1, 10]. Unfortunately, despite many contra-indications, they are used by approx. 50% of the elderly [22].

Weak opioids, namely tramadol and codeine, are used in the treatment of pain in the locomotor system as fundamental or supportive treatment, especially in neuropathic pain [10]. Opioid usage should be considered with patients with mild to severe pain, which impair functional activity and quality of life [22]. Treatment with strong opioids (e.g. morphine) should be considered only when other methods of treatment had failed. Opioid therapy should not be used with patients with dementia and demeture. Among the unwanted side-effects of opioid usage are additions and respiratory depression. Substantial problems of people in old who are treated with opioid are sleepiness and confusion which play a role in falls [10, 24]. In rare cases, chronic treatment with opioids may lead to the occurrence of extrapyramidal symptoms similar to Parkinson’s syndrome [25]. In opioid treatment of the elderly, it is important to start with small doses and slowly increase them, considering the possible occurrence of potential unwanted side-effects, which must be prevented and treated instantly [1].

Other groups of medicine include supportive medicine, which have effects other than pain killers, but are proven to be effective against neuropathic pain. The following are antidepressants, anticonvulsants, lidocaine, mexiletine and NMDA receptor antagonists are a few [1, 5].

Although pharmacology is fundamental in pain treatment of people of old age, it is important to combine the treatment with non-pharmacological ways of countering pain, which may significantly reduce the amount of medicine intake and provide the patients with the feeling of control. Among non-pharmacological ways, the following can be distinguished:

- rehabilitation – including physical exercises, physical methods, cryotherapy, electrotherapy, massages, mobilisation and medical manipulation;
- occupational therapy – used to improve self-service and provide independence;



- psychological therapy – the most commonly used behavioural therapy or cognitive-behavioural therapy, relaxation therapy and biofeedback;
- complementary and alternative therapy – acupuncture, homeopathy, spiritual support [1, 5].
- therapeutic fasting – voluntary resignation from food consumption over a specific period of time for therapeutic purposes. Due to fasting, approx. 300 kcal/day is lost. It is recommended in rheumatoid arthritis, migraine and chronic pains [26].

Independence, the possibility of doing everyday activities and favourite actions are crucial for patients in old age; thus, even a slight possibility of improving functional activity may greatly enhance the pain control. In pain treatment, awareness among the elderly, their families and carers, and medical staff that the pain is not an attribute of the old age of, thus it should be correctly diagnosed and treated. Unfortunately, in real life, as commonly as concurrence of pain among seniors, there is improper or lack of pain treatment [5].

## DISCUSSION

Old age predisposes for frequent occurrence of chronic pain connected with both involuntary changes of the elder organism and with multiple morbidities characteristic of that period of time. The pain assessment of people in old age is difficult, and therefore requires vast experience. It is significant to include the possibility of expressing pain and attracting attention to objective pain symptoms. Pain treatment of old people should be multi-disciplinary and include both pharmacological and non-pharmacological treatment. Awareness should be raised that for pain treatment the possibility of improving functional activity may greatly enhance the pain control.

## CONCLUSIONS

1. Old age predisposes to the occurrence of chronic pain.
2. The sensation and reaction to pain changes with age.
3. Pain classification in people of old age, especially with cognitive disorders, is difficult and requires vast experience.
4. Pain treatment of people in old age should be multimodal and include usage of both pharmacological and non-pharmacological methods of treatment.

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