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Chronic pain in the elderly: prevalence and management

Dr. Lucy Gomes

Abstract: *This is a review article, showing the prevalence of chronic pain in elderly patients, its main location and its non-pharmacological and pharmacological management.*

Keywords: *chronic pain,elderly, pharmacological treatment*

I. INTRODUCTION

The world's population is in an accelerated and gradual process of aging. As a consequence, there is an increase in the prevalence of chronic-degenerative diseases, which are often accompanied by chronic pain[1, 2].

Chronic pain is considered a complex event, of biopsychosocial nature, which is a collective health problem, requiring a multidisciplinary approach[3]. It is defined as subjective, continuous or recurrent, with an unpleasant sensorial and emotional character, manifested by actual or potential tissue lesions[4] and exceeding the period of three months[5,6]. However, several publications describe chronic pain as one that persists for a period of six months or more[7,8].

The prevalence of chronic pain in the elderly is quite diverse, depending on the characteristics of the population studied and the methodology used. In international studies, its prevalence varies from 25.0 to 59.3% among elderly people living in the community[2, 9, 10] and from 45.0 to 80.0% in institutionalized elderly [11]. In Brazil, the prevalence in the elderly living in the community varies from 29.3 to 62.2% [12, 13] and in the institutionalized elderly it is described as 58.1% [14, 15]. Chronic pain in the elderly is associated with: female gender [12, 16], advanced age[2], lower level of education and socioeconomic status[12], paid work[17] and less regular practice of physical activity[12].

Women have a lower threshold of pain in the presence of nociceptive stimuli than men because of differences in control mechanisms, whether excitatory or inhibitory. In addition, genetic, psychological and cultural factors should be considered[18]. Women may perceive the pain event more seriously because of the multiple responsibilities resulting from the concomitance of housewife activities and the role of family caregiver, which makes them consider the condition more threatening. In addition, the meaning of pain can be influenced by social and cultural norms that allow women to express pain, while encouraging men to disregard it. These factors should also be considered as contributors for women to complain more frequently about chronic pain[12].

One of the hypotheses about the benefits of physical activity practice for chronic pain management is its influence on the endogenous mechanisms of pain control. In Norway, the prevalence of chronic pain in the elderly was reduced from 21 to 38% with moderate intensity physical activity three times a week. However, it is possible that these elderly people present a lower prevalence of chronic pain because they are physically active, reducing the intensity and duration of chronic pain previously present[12].

Chronic pain has a negative impact on the functionality of the elderly[7], leading to the incapacity to maintain independent life, due to limitations mainly in locomotion. In the city of São Paulo, Brazil[7], chronic pain was associated with greater dependence and worse mobility, showed that 19.8% of the elderly had difficulty in performing the basic activities of daily living. It also negatively reflects in the autonomy of the elderly, increasing agitation, stress, depressive symptoms[22] and social isolation[23], with a significant impairment in quality of life[24].

Musculoskeletal disorders, such as osteoarthritis, are highly prevalent among the elderly, often resulting in chronic pain. Its main anatomical locations are lower limbs and lumbosacral region, followed by upper limbs and cervical spine[7]. Trelha et al [21] reported that the lower limbs and the dorsal region, together with the lumbar and sacral regions, were the most prevalent anatomical sites, reported by 52.25% and 48.64%, respectively. An epidemiological study in Brazilian elderly showed a prevalence of pain in the dorsal region of 21.7% and in the lower limbs of 21.5% [17]..In the elderly restricted to home due to physical or mental incapacity, the prevalence of chronic musculo-skeletal pain in the lower limbs is 62% and in the lumbar region is 50%. The location of pain is the preponderant factor in the difficulty in performing physical activities, since it makes movement difficult and restricts the range of movements[25].

In the elderly living in the community, chronic pain also interferes with sleep, mood and leisure[26, 27]. In Taiwan, activities that suffered the greatest loss were gait, humor and work, with little impairment in sleep[28]. In long-lived women with chronic pain, it is a factor that further compromises sexuality in this period of life[29].

In the elderly, cognitive, sensory and disability disorders of various origins make it difficult to evaluate and diagnose pain syndromes[30]. In Brazil, the undervaluation and sub-treatment of chronic pain by health professionals is a reality, leaving the elderly vulnerable to consequences due to the loss of functionality secondary to the sub-treatment of pain. There is a need for pain education in order to minimize the weaknesses in the evaluation and management of chronic pain in this age group, since more than 50% of the elderly do not adequately control the pain and more than 25% of them die without obtaining this control. In the elderly with dementia, the diagnosis and treatment of pain is an even greater problem, which is partly justified by the difficulty in its evaluation[31].

The multidisciplinary approach to chronic pain is of fundamental importance for successful treatment. The combination of pharmacological and non-pharmacological method for long-term pain control provides a better analgesic effect than the isolated use of each one. Non-pharmacological methods are safe, well-tolerated and cost-effective alternative therapy. Physical exercise associated with self-management of pain is central to the non-pharmacological approach[32]. Emerging evidence suggests that other methods may be beneficial, including: psychotherapy (mainly cognitive-behavioral therapy[33], acupuncture[34], music therapy[35], reiki[36], occupational therapy[37], yoga and Tai chi[38], massage therapy[39], meditation[40], hydrotherapy[41], transcutaneous electrical nerve stimulation (TENS)[42], pulsed electromagnetic field therapy[43], neuromodulation[44], biofeedback[45], and leisure and social activities[46].

Pharmacological treatment of pain in the elderly should be done following the World Health Organization (WHO) standardization, in a four-step ladder according to the intensity of pain. Non-opioids analgesics are used alone in the treatment of mild pain (verbal numerical scale / EVA 1-3) or associated with opioids in moderate pain (EVA 4-6) or severe pain (EVA $\geq$ 7) [47]. Acetaminophen should be used in the initial and ongoing treatment of persistent pain in the elderly and is considered a safe analgesic and without significant side effects. However, its potential for hepatotoxicity is widely known, especially when there is overdosage (more than 4g, or when administered to individuals with hepatic pathology). Selective or non-selective non-steroidal anti-inflammatory drugs (NSAIDs) should be rarely considered and, when used, should be used with caution because of their side effects. Hormonal anti-inflammatory agents are indicated in intra-articular infiltrations[48, 49].

Opioid analgesics are used to treat moderate to severe pain. They are divided into weak opioids (codeine and tramadol) and strong opioids (morphine, methadone, oxycodone, fentanyl and buprenorphine).

Common side effects include: nausea, vomiting, pruritus, dizziness, xerostomia, constipation, urinary retention, drowsiness, confusion, and euphoria. Opioids should be started at the lowest dose possible, with progressive increase until the best response to pain is achieved with fewer side effects. They have a good safety profile and, despite the fear of respiratory depression, this complication is rare through careful prescription[50].

Tramadol is the most recommended opioid because, besides important analgesic action mediated by the opioid receptor, it acts by inhibiting the reuptake of serotonin, also acting in the modulation of pain. Methadone, with action on opioid receptor and n-methyl-D-aspartate (NMDA) receptor, should be used with caution in the elderly because it presents a long half-life, with dose accumulation and greater side effects. Buprenorphine is an opioid partial agonist used transdermally in the elderly, with patch replacement every seven days, taking about 72 hours to achieve maximum effect and not requiring dose adjustment in those with renal dysfunction, with a good safety profile[50,51].

Capsaisin is a plant-derived neuropeptide from the Solanaceae family, producing effective selective analgesia by affecting synthesis, storage, transport and release of substance P, the main chemical messenger of peripheral pain impulses to the central nervous system. It is presented as a cream or gel, and is indicated for well localized pain, such as osteoarthritis of the knees. It may lead to a sensation of increased pain, initially on burning, indicating the need for topical anesthetics before its application[51] .

With the large growth in life expectancy of the world population, there is a need for new research in this area with the objective of offering a better quality of life in the additional years obtained. It is necessary to develop multidisciplinary programs for the management and control of chronic pain in the elderly, including guidelines for health professionals to act in their prevention, with physical activity programs focused on the elderly, targeting primarily women with low income and insufficiently active in the recreation.

It was concluded that chronic pain affects a considerable portion of the elderly, leading to an increase in the demand for health services, with risk of polypharmacy, iatrogenic processes, institutionalization and mortality, becoming a multidimensional and complex public health problem. Reducing the impact of pain in this population should be a priority for health authorities. It is necessary to implement control strategies that can be applied to as many elderly people as possible.

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