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Evidence-Based Use of Polyfunctional Antioxidants for Chronic Pain Management in Musculoskeletal Frailty and Sarcopenia in Aging

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Abstract

Musculoskeletal disorders in aging and pain are closely connected because of multiple mechanisms leading to loss of mobility and sarcopenia. Pain is a complex phenomenon, and it is important to understand the underlying mechanisms when the accounts of pain. This study presents a systematic review of randomized controlled trials and observational studies on the use of polyfunctional antioxidants for chronic pain management in musculoskeletal frailty and sarcopenia in aging. Polyfunctional antioxidants are a group of compounds that have multiple functions in the human body, including the ability to scavenge free radicals (e.g., thiols, monomeric antioxidants, and polyphenols) and to inhibit the production of free radicals (e.g., thiols, monomeric antioxidants, and polyphenols). Results show that polyfunctional antioxidants have a positive effect on chronic pain in musculoskeletal frailty and sarcopenia in aging. Further research is needed to confirm the results and to determine the optimal dosage of antioxidants.

Keywords: pain; chronic pain; sarcopenia; frailty; aging; antioxidants; polyfunctional antioxidants

1. Introduction

Pain has been suggested as a cause of chronic disease, aging and it accelerates functional and health status decline. Often, adults suffering from pain are more likely to have poor health status, more disability and worse functional mobility [1] than those without pain. These adverse pain-related sequelae contribute significantly to the burden of disease and to the overall cost of health care [2].

Chronic pain is a complex phenomenon and is a major cause of disability and frailty in older people [3].

The link between pain and the incidence of frailty has to do with the intensity of pain in a dose-response relationship [4]. In general, chronic and severe pain could affect several physical domains, including mobility, strength, and balance, which are all components of frailty. Pain in the musculoskeletal system in aging appears may cause a general state of vulnerability to decrease, which could lead other adverse outcomes such as falls, fractures, and disability. Pain could also lead to a state of fear of movement, which could further decrease physical activity, decrease muscle strength and endurance, and therefore the person is at risk to develop sarcopenia and subsequently, frailty. All these evidences could lead pain to sarcopenia and frailty in aging. However, the exact mechanisms underlying the association between pain and frailty are not known.

Clinicians have several challenges when treating pain syndromes in chronic in the elderly. Managing pain in older people is complicated because of the presence of multiple medical conditions, polypharmacy, and polypharmacy, which increase the risk of adverse events. Moreover, pain is a complex phenomenon with multifactorial and family sensitivity to other adverse effects (e.g., pain, emotional and inflammation). Drugs are prescribed to treat pain in older people, but they are associated with adverse effects such as falls, fractures, and disability [5]. Despite the pain complaints in the elderly, they are less likely to receive pain treatment than younger people [6]. Pain in older people is also associated with other adverse effects such as depression, anxiety, sleep disturbance, nutrition, exercise, and chronic supplementation [7].

Pain in aging is a complex phenomenon and it is not a simple accompaniment and is the pain is chronic and severe, it could lead to a state of fear of movement, which could further decrease physical activity and nutritional consumption that may improve chronic pain syndromes through anti-oxidant and anti-inflammatory effects.