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Editorial

Exercise and Sarcopenia in Cirrhosis

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Editorial

Cirrhosis is the end stage of every chronic liver disease, which leads to fibrosis and inflammation, resulting in a compromise of the structure and function of the liver [1]. Cirrhosis can cause a collapse of liver histology, modifying the vascular architecture of the organ and increasing the risk of cancer [2]. Besides the obvious consequences regarding the physiological function of the liver, cirrhosis might affect other tissues indirectly, like the muscular tissue. These patients might present a sensible loss of muscular mass, leading to clinically significant sarcopenia [3,4].

Sarcopenia in cirrhosis has been associated to lower survival, although some degree of recuperation after liver transplantation has been described [5-7]. It is present in around 40% of patients listed for liver transplantation and it doubles the risk of death in the waiting list [5]. This risk has been associated to sarcopenia independently of MELD scores [8]. Even though many factors linked to muscular disease in cirrhotic patients are not yet completely understood, it is believed that this condition impairs muscular homeostasis, leading to an imbalance between synthesis and consumption of muscular proteins, which might in turn cause accelerated and intense loss of muscular mass [9]. Such sarcopenia is believed to be the most important cause of functional incapacity, malnutrition and dependence [4,9].

Functional impairment caused (or intensified) by sarcopenia might worsen the health condition of these patients, reducing their levels of daily physical activity, leading to an underuse of the muscular system, increasing the waste of muscular mass. Physical performance tests, such as the 6-minute walk test and oxygen consumption, have also been shown to be useful into predicting mortality in this population, suggesting that physical inactivity might be an important marker for treatment and follow-up of this condition [10,11]. Many studies in other populations suggest that the production of force and muscular potency as main determinants of functional capacity [12-14].

Force training has been widely suggested as an important modality of treatment for sarcopenia [15-19]. Although there are only a few studies which can shed some light into this question, it is known that the use of force is impaired in cirrhotic patients, which generally varies according to the disease stage [20]. Recently, some papers have suggested that rehabilitation programs for these patients should be aimed into increasing force to combat sarcopenia, which could improve prognosis and quality of life in cirrhotic patients, improving clinical outcomes such as hepatic encephalopathy [21,22]. Although some strategies for physical exercise might have been already tested [21-24], no studies that uses force training in cirrhotic patients has been found, specially randomized trials. Hence force training is a valuable tool in the slowing of sarcopenia [25,26], in the increasing of muscular force [27,28], functionality [29-31] and quality of life [19,30,32], studies which could use this modality of exercise in the treatment of this population are needed.

In conclusion, sarcopenia is considered currently an important complication of cirrhosis, which worsens functionality and affect outcomes. A randomized clinical trial of force training for the treatment of sarcopenia in cirrhosis is long awaited to clarify this problem..

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