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Editorial

Sarcopenia, the last organ insufficiency



Sarcopenia, an age-related decrease in muscle mass and function, is a frequent precursor of frailty, decreased mobility (mobility disability) and premature death. It has a high prevalence in older populations and confers a considerable social and economic burden through the complications that arise including falls, fractures, hospitalisations and death. Although sarcopenia is now a familiar term and concept for any practicing geriatrician around the world, the concept of sarcopenia is quite recent in the medical literature and is a good example of how nosology has changed in the last decades.

The term *sarcopenia* was first introduced in medical sciences in 1989 to describe a decline in skeletal muscle mass associated with human ageing and leading to decreased strength and functionality [1]. Research (mostly epidemiological) confirmed that the concept and the condition were relevant, but also showed the importance of muscle and body function over muscle mass. At the end of the first decade of this century, the need for a consensus definition of sarcopenia was clear, so it was not surprising that in 2010/2011, four international expert panels reached consensus on similar statements defining sarcopenia as a condition characterised by declining muscle mass and function [2–5] and cooperative research tried to define the best cut-off points for each of the parameters that define sarcopenia [6].

In the most recent years, the number of groups reporting high quality research in sarcopenia is rapidly growing, being the European Union Geriatric Medicine Society (EUGMS) a key player. It is not surprising that the first monographic issue of *European Geriatric Medicine* is devoted to sarcopenia. Based on the work of the EUGMS Special Interest Group on Sarcopenia, it includes authors from around the world and tries to offer a patchwork with an overview of sarcopenia research.

Sarcopenia is closely linked to physical frailty [7], and this relation is now in the agenda of drug agencies [8]. A brief outline of the paths leading to sarcopenia is then introduced, including physiological aspects of muscle function [9], the role of vitamin D [10], sarcopenic obesity [11] and the links between sarcopenia and the cardiometabolic syndrome [12]. Sarcopenia is embedded in geriatric practice, so a brief review of the problems it raises in hospitals [13], post-acute care and rehabilitation settings [14] and nursing homes [15] may help practicing geriatricians to grasp some understanding of this condition.

Assessing sarcopenia is complex, both in research and practice [16]. Biomarkers are being actively searched for [17], and assessment of muscle mass and function is explored from different perspectives [18–21]. Although interventions for sarcopenia are still based on physical exercise and nutrition, new drugs are still in

the first steps of development [22], so innovative approaches may be needed [23]. The issue ends with some considerations on public health aspects of the condition [24,25].

Sarcopenia may best be viewed as an organ failure (*muscle insufficiency*) and is usually chronic, but can develop acutely (for example, during hospital admission). It is linked, through physical frailty, to the development of physical disability [7]. Major organ insufficiencies (heart, lung, renal) have been at the forefront of medicine for a long time. Acute (delirium) and chronic (dementia) brain insufficiency emerged as key conditions at the end of the 20th century. Surprisingly, muscle insufficiency (sarcopenia), the only missing large organ insufficiency, the one that is most tightly linked to physical disability, is only coming to the headlines in very recent years, when age-related disability is becoming a major issue to be tackled by aging societies. Let us hope that research in sarcopenia rapidly catches up.

Disclosure of interest

The author declares that he has no competing interest.

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