

Sarcopenia in hospitalized geriatric patients

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Valorisation

Valorisation

Relevance

Both globally and in the Netherlands, we are faced with an ever-aging society. In 2018, there were 3.2 million people aged 65 years and older in the Netherlands, representing 18% of the population. By 2041, this number will have grown to 4.8 million people, representing about 27 percent of the total Dutch population (1). Although in 2040, people aged 65 years still have a life expectancy of 22-24 y, the last 15-17 years of their life, they have to deal with physical and functional decline including mobility problems. About 22% of the people aged 65 y and older are frail and are at risk of functional decline. These frail older adults have more health problems and need more health care, including hospital care, compared to non-frail older adults (2). Within the older population, geriatric patients are the frailest subgroup, usually displaying several co-morbid diseases and physical and/or mental disabilities. When affected by an acute illness, they have an atypical disease presentation with rapid functional decline, and hospitalization is often unavoidable. In 2019, more than 16,000 geriatric patients were admitted to acute care geriatric hospital wards in the Netherlands because of acute problems (3). Therefore, many geriatricians recognize in a significant proportion of acutely hospitalized geriatric patients the case study of Mr. T, which we presented in this thesis. He showed considerable functional decline during hospital admission despite proactive multidisciplinary treatment aimed at functional recovery. In addition to the frailty, co-morbidity and severity of the acute disease, sarcopenia appears to explain this functional decline. On the other hand, sarcopenia can also partly be a consequence of hospitalization itself, resulting in a vicious circle of deterioration. In this dissertation, we conclude that sarcopenia is a common condition in acutely ill hospitalized geriatric patients (**chapter 2**). We have shown that the presence of sarcopenia in these acutely ill frail patients with co-morbidity and disability is an independent predictor of adverse outcomes including mortality (**chapter 3**). In addition, we have demonstrated that the assessment of sarcopenia by means of measuring skeletal muscle mass (**chapter 4**) and muscle strength (**chapter 5**) needs special attention because of the limited physical capabilities of these patients and the frequent presence of problems with their hydration status. Since all of the data were collected in a real-life hospital setting, many of the findings can be directly translated to daily practice. In doing so we are able to develop tailor-made treatment plans to combat functional decline and improve quality of life and reduce health care consumption and costs.

Recommendations

Because of the high prevalence and the prognostic significance of sarcopenia in acutely hospitalized geriatric patients, it is recommended to determine whether sarcopenia is present

upon hospital admission. This should be done when performing the comprehensive geriatric assessment (CGA) (4). Given the specific characteristics of the geriatric patient, in this thesis a diagnostic algorithm is proposed that takes into account the heterogeneity of the acutely ill geriatric population, the frequent presence of hydration problems and the often limited physical capabilities (**chapter 6**). It is strongly recommended to adopt this diagnostic algorithm in all geriatric hospital wards in the Netherlands. In this way, a database can be generated that strengthens the evidence that this diagnostic algorithm can represent a valid instrument with good predictive properties. This can be achieved by creating awareness among geriatricians and residents about the best evidence until now about sarcopenia in the acutely ill hospitalized geriatric patients. This can be done by sharing the results of this thesis to all members and residents of the Dutch Geriatrics Society (5) by providing each member of personal (digital) version. Furthermore, the topic of sarcopenia, and sarcopenia assessment, should be included in the research agenda of the Dutch Geriatrics Society. By means of the existing research network, many Dutch hospitals can participate in the validation of the diagnostic algorithm and become familiar in assessing sarcopenia. After further validation, the diagnostic algorithm should be incorporated in the guideline CGA of the Dutch Geriatrics Society. The author of this thesis has already provided up to date information about sarcopenia in the hospitalized geriatric patient during the input round on the way to the revision of the CGA. In addition, to improve knowledge about sarcopenia in residents in geriatric medicine the author of this thesis, is involved in their training as a regular part of the national education program.

In addition to creating awareness and up to date knowledge among the geriatricians and residents, the acute care geriatric hospital wards will have to be provided with the appropriate equipment. In order to be able to apply the diagnostic algorithm, in addition to a stopwatch, a Martin Vigorimeter and a bio-impedance device are required. The advice is to strive for the same device for all geriatric departments in the Netherlands. The bio-impedance device should be able to measure several body segments separately with different frequencies, which is also relevant for evaluation of treatment plans. Of course, a short training program in the use of these devices should accompany the application in daily practice so that it can be more easily ingrained in the daily departmental routines.

By means of a clinically applicable, valid and feasible diagnostic algorithm, we may be better able to not only diagnose sarcopenia upon hospital admission, but also test tailor-made exercise training programs, nutritional interventions and exercise mimicking treatment options for their applicability and effectiveness, both in daily practice and in research. Apart from such hospital-based applications, it is evident that geriatric patients often come into contact with several care providers, even before hospital admission as well as after hospital discharge. In preventing sarcopenia as early as possible before hospital admission, several steps can be

taken by the general practitioners. Screening for sarcopenia in patients who visit the general practitioner for something else, or in the elderly patients who come with mobility problems should be embedded in the clinical routine, so that appropriate diagnostics and treatment can start in collaboration with the dietician and physiotherapist. Subsequently, a proper medical transfer between general practitioner and hospital is necessary when referring patients. In doing so, the chain of health care should be aimed at limiting functional decline and keeping these geriatric patients less dependent and able to stay at their homes as long as possible. This is in accordance with government policy.

The results of this thesis urge to create a better overall awareness about sarcopenia and its consequences in geriatric medicine, community medicine, as well in hospital care. The Dutch Geriatrics Society can take a leading role in creating this awareness. As we live in an ageing society with a health policy based on “*aging in place*”, prevention of functional decline is a key topic. Many older (frail) adults are in contact to one or more health care professionals or organisations, at the same time or consecutively. Everyone, including amongst others patients, family, general practitioners, geriatricians, nurses, physical therapists, dieticians and health insurance companies should therefore be informed to become aware of the importance of sarcopenia and the possibility to prevent and combat it. This can be achieved by means of education programs on the prevention, diagnosis and treatment of sarcopenia that should become available and implemented for all these actors. To this end, the results of the studies in this thesis are not only disseminated via the literature and presented on congresses; they will also be used in the development and implementation of education programs as to aid in the overall goal of successful ageing for all individuals in our society.

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