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The importance of identifying intrinsic and modifiable risk factors for falls in order to act early prevention measures

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Falls in the elderly constitute one of the main public health problems, both due to their prevalence and consequences. One of the most serious is the fracture of the femur. The annual prevalence of falls in the over 65 population ranges between 28% and 35%, and these falls are frequently repeated¹. The factors responsible for a fall are divided into intrinsic (related to the patients themselves) and extrinsic (derived from the activity or the environment), the cause being multifactorial in most cases¹. When assessing the intrinsic factors of a fall, we must take into account the physiological disorders related to age (including the presence of nutritional alterations, sarcopenia and frailty), acute and chronic diseases and the prescription of certain drugs¹. For this reason, when faced with a fall, it is essential to have a comprehensive approach to the adult through a global geriatric assessment that includes a complete assessment of gait and balance.

We mention frailty, which may be erroneously considered another word for disability and comorbidity. However, frailty is a potentially reversible situation in which there is a progressive decrease in the physiological reserve capacity and in the adaptation capacity of the body's homeostasis (homeostenosis) that occurs especially with non-physiological aging. Frailty, as a clinical entity, is influenced by (individual) genetic factors and is accelerated by acute and chronic diseases, toxic habits, disuse, and social and care conditioning factors. There are currently two fundamental approaches to frailty: a functional and restrictive one, proposed from the Linda Fried phenotype, according to which frailty would be a state prior to disability but different from it, assessed by five components (weight loss, tiredness, weakness, psychomotor slowdown and hypoactivity). There is another, broader but less defined conception in terms of a less clear differentiation of frailty and disability, and in which frailty would be attributed to an accumulation of deficits (Rockwood cumulative indices of frailty).

Between these two positions, there is an important multitude of intermediate options².

By the same token, there may be an interaction, and overlap, between the presence of frailty and sarcopenia. With age, starting at thirty years old, there is a progressive

loss of skeletal muscle mass and strength³. To advance its understanding, in 2010 the European Working Group on Sarcopenia in the Elderly published a document that set out a practical clinical definition and consensus diagnostic criteria for age-related sarcopenia. Thus, the diagnosis of sarcopenia is based on the confirmation of low muscle mass (criterion 1) plus one of the following: low muscle strength (criterion 2) or low physical performance (criterion 3).

This group has carried out an update of its consensus in which greater attention is given to muscle strength as key data in sarcopenia (relegating the measurement of muscle mass to a point of research rather than of use in clinical practice), it modifies the diagnostic algorithm and establish clear cut-off points for diagnosis. In addition, the use of the SARC-F questionnaire as a screening tool is recommended³. Currently, the importance of osteosarcopenia as a phenotype resulting from the combination of sarcopenia and low bone mineral density is being highlighted, and that an increased risk of falls and fractures would be associated⁴.

For all these reasons, studies such as the one by Rodríguez-García et al.⁵ that assess risk factors, such as frailty and sarcopenia, on the risk of falls and osteoporotic fractures in the real world are always welcome. The authors randomly evaluate 624 inhabitants (308 men and 316 women) older than 50 years (mean age 65 years, with a long follow-up period of 8 years –high percentage of follow-up at the end of the study–) and calculate the incidence of falls and non-vertebral osteoporotic fractures. In the baseline evaluation, the grip strength in the hands was measured and a questionnaire was completed with clinical variables, risk factors related to osteoporosis and questions related to difficulty or inability to carry out daily activities. Falls were reported in 44.9% of women and 23.5% of men, and non-vertebral fractures were reported in 13.2% of women and 2% of men. The incidence of falls increased with age and they were more common in women¹. Grip strength in hands was not associated with the incidence of falls or fractures.

However, the impossibility or difficulty of: "sitting for more than 1 hour in a hard chair", "taking off socks or stockings" or "leaning from a chair to pick up an object



from the floor” were associated with the presence of falls. Furthermore, the impossibility or difficulty of “carrying a 10-kilo object for 10 meters” and “lifting a box with 6 bottles and putting them on a table” was associated with fracture. The authors conclude that there is an association between difficulty or inability to perform daily activities and the presence of fractures and between activities related to functional capacity and the presence of falls.

The study has strength (long follow-up, few losses) and some weakness that the authors recognize (especially the dynamic course of both frailty and sarcopenia over time) and others that we will comment on, probably derived from the fact that the initial study protocol did not was designed specifically to answer the question in the title of the article, but to know the prevalence of vertebral fracture at the European level. Thus, it would probably have been more advisable to use tools to diagnose the presence or absence of more consensual frailty or sarcopenia. The article also does not define what was considered a fall or who reported it (participant, caregiver, both?). Or whether there were associated extrinsic factors. It is also important to reflect, when analyzing the

results of the study, on the importance of an older age of the participants (for example, 75 years) in the results obtained: greater number of falls, worse results of the evaluations carried out and a greater chance of finding associations.

The positive reality informs us that the number of elderly people who are being evaluated for specialties other than geriatrics is increasing. This implies the need to apply the principles of geriatric medicine to advance together using the same language⁶. The association between falls and frailty or sarcopenia is increasingly recognized in the literature^{7,8}, but we must speak of the same entities and we must standardize the assessment tests. In this specific case, it is even more important, because both situations present considerable possibilities of reversal, mainly through multi-component exercise programs and through adequate and individualized nutritional intervention. Therefore, to avoid the incidence of falls and its consequences, it is essential to implement multi-factorial assessment and intervention programs^{9,10}. The final message that we must not forget is that, in the presence of a fall, we should always evaluate the elderly and intervene whenever necessary and possible.



Conflict of interests: Authors declare no conflict of interests.

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