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Models and Stages of Frailty

Besides the model of cognitive frailty which we are following in our approach, there are frailty profiles classifying groups of older adults into frailty profiles which are based on functional activity (physical and cognitive) and taking into account social vulnerability as well as habits and lifestyles.
The most important national and international studies (SHARE, FRADEA, EPESE, etc.) shows that the prevalence of frailty vary from 5% to 22%, which can derive on lack of independent living and dependency status, which will reach above 50% in 2050.

Some of the most important other models of frailty are:

- **Fried et al. (2001) Model:** Based on data from the "Cardiovascular Health Study, frailty is a clinical syndrome where three or more of the following criteria: unintentional weight loss, self-reported exhaustion, grip strength decreased, slow speed walking and low physical activity. Pre-frailty presents 1-2 criteria. This definition shows a concurrent validity by the expected associations with age, chronic conditions, cognitive function and depressive symptoms. Moreover it independently predictive of several significant outcomes such as falls, hospitalization, worsening of disability and death.
- **Buchner (1992) Model:** Frailty is referred to, as the thresholds at which loss of physiologic reserve and the adaptability of the organism begin to be insufficient to maintain independence and are at risk of become dependents. Therefore, it would be a result of multisystem reduction of internal homeostasis of the organism, which latter mechanisms are currently unknown and could be related to multiple factors (biological, genetic, habits and lifestyles, chronic diseases and psychosocial conditions). The clinical manifestation of this process would be the onset of disability. This model therefore has special relevance from the point of view of prevention, because it would detect preclinical frailty and functional impairment prior to the development of dependence situations. Frailty is not a synonymous of disabilities (defined as stable functional impairment) but unstable functional impairment or risk of functional decline with small external aggressions.
- **Brocklehurst (1985) Model:** Frailty is the risk of losing the capability to life in the social community.

Stages of frailty
All of the models are stating different stages of frailty that are relevant in terms of prevalence and needed type of intervention.

- **Healthy older adult** > More than 60 years with no objective disease. Functional capacity is good and is able to autono-mously perform basic and instrumental activities of daily living (ADL). More-over, social problems or unhealthy living habits are not present.
- **Pre-Frailty** > Healthy person with a chronic illness (simi-lar behaviour to an adult sick). Frequent visits to doctor and several hospitaliza-tions due to a unique process but without other mental, physical or social problems. Their health problems can be addressed leaning on traditional health care services.

- **Frailty** > People who retained their indepen-dence precariously and is at high risk of becoming dependent. People with comorbidity, but if they are com-pensated (mainly leaning on social and familiar environment) achieve a de-li-cate balance to allow basic Inde-pen-den-ce. Intercurrent processes (infection, falls, changes in medication, hospital-i-zation, etc.) can lead to a situation of loss of independence re-quiring the need for health and/or social services / sup-port. Functional capability is apparently well preserved for basic ADL (e.g. self-care) but with problems for com-plex in-strumental ADL. The main fact is that, being inde-pendent they are at high risk of be-coming dependent (risk of disa-bility).
- **Dependence** > Older person with one or more chronic disea-ses, from basis but evolving, where there is already a clear These patients are dependent for basic ADL and need help from other persons.Mental and social disor-ders are frequent. The so-called geriatric pa-tient is the old man in whom the balance bet-ween their needs and the capacity of the en-viron-ment cover is bro-ken and the patient has become dependent and disabled.

?The most frequent **characteristics** of frailty people for each **domain** are:

1) **Sociodemographic**: significantly older, more likely to be female, poorly educated, lower income compared with non- frail older adults (Avila- Funes et al., 2008);
2) Physical and **health status**: High number of chronic diseases such as hypertension, stroke, diabetes, etc. (SARHE) and falls;
3) **Lifestyles** and non-healthy habits: Lack of physical activity and consume of tobacco and alcohol;
4) **Cognitive**, psychological and emotional: Cognitive impairment, depression and dysthymia; 5) **Functional** capabilities: Need of support for ADL, especially instrumental ones, problems of mobility and needed of domiciliary support.

In my-AHA we will focus on all domains of frailty based on a holistic approach, and covering the different stages of frailty as this vicious cycle is breakable by means of early risk detection and tailored intervention, especially in the early stages like pre-frailty.

My-AHA will consider the inter-relationships between healthy biological ageing and wellbeing with sex/gender, ethnicity, socio-economic factors and other lifetime determinants requires further study, with an interest in individuals with discordant profiles (e.g. those maintaining psychological wellbeing and social participation despite functional decline).
Gender issues are particularly relevant for this study, since different responses to frailty can be envisaged in the two sexes: for example, reduction in bone density, leading to falls and fractures, is more frequent in females, whereas a significant reduction in muscle fibre mass is expected in males. This may have a relevant impact on physical and psychological frailty in the two sexes, and affect the compliance of the individual to the different types of intervention. Moreover, a different approach to ICT can be gender-related, especially in the elders.
