



FRAILITY AND MORBIDITY REDUCTION

Challenges

The increase in life expectancy has provided many research opportunities in geriatrics and makes of the "fight against frailty" one of the priorities of our Western societies, the aim being to delay as much as possible the onset of dependence and disease in the elderly.

For many years, geriatricians have been the powerless witnesses of dependence. Today, a **new era** has begun thanks to the **new concept of frailty**. Developed in the USA in the 1990s, and recently introduced in France, the notion of frailty makes it possible to **consider the preventive management of elderly people** so that they do not become irreversibly dependent.

The 2009 World Congress of Gerontology and Geriatrics held under the auspices of the IAGG (International Association of Gerontology and Geriatrics) **will be placing considerable emphasis on this new scope of geriatrics**, its definition, detection and management, which are the main challenges of current research.

Professor Yves Rolland, a researcher in geriatrics and gerontology and a member of the team led by Professor Bruno Vellas who heads the Gérontopôle in Toulouse, provides us with key basic information to help us **understanding this fascinating discipline** and tells us about the major presentations during the Congress.

The concept of frailty in geriatrics

Frailty is a geriatric syndrome that results from various age-related physiological changes. It can occur independently of specific diseases.

The elderly are a highly heterogeneous population that can be broken down into three major categories:

- the healthy elderly (60-70%),
- the dependent elderly (10%),
- **frail individuals, who account for around 20% of the elderly population.**

People of the same age do not evolve in the same way: depending on their state, some may "negatively" evolve following hospitalisation or stress, while others with the same history will achieve an optimum recovery.

This phenomenon, well known to geriatricians, reflects a dimension of frailty that is not solely age-related and **geriatricians are trying to better understand this dimension of vulnerability**. The aim is to detect individuals who are in an unstable situation and are at risk of becoming dependent if no intervention is organised. Once they have become dependent, it is sadly accepted that it is very difficult to return them to a good state of health.

What we need to know about frailty

Age is an important factor in frailty. **The older an individual, the greater the risk of him or her becoming frail.** However, one can be quite young and frail, or on the contrary be very old and still robust.

No consensual criteria are currently available to determine the prevalence of frailty, but it can be said that **most subjects over 85 years of age are frail**. Around 20% of people over 70 years of age are considered as frail.

Frail individuals are exposed to an **increased risk of death (around 15%)**, while this risk is only 4% in the robust elderly. Falls are more common, they are more frequently admitted to hospital (the mean duration of hospital stay for frail individuals is 24.8 days *versus* 12.9 for independent subjects), and they suffer from a larger number of acute conditions and motor disorders than others. Finally, studies have shown that frail individuals are at a greater risk of developing disease of the Alzheimer's disease type.

The components of frailty

A number of conditions exert a strong influence on the fate of elderly people.

Predisposing factors for frailty include **malnutrition, weight loss, reduced physical exercise and slowness** that develop gradually, or **impaired strength** (with considerable disparities from one subject to another). To these factors should be added **cognitive elements** such as memory loss or difficulties in speaking, and **psychological elements** such as depression or tiredness. According to Fried's criteria (determined in 2001 and the most widely used as no consensus has been reached) **an individual is considered as frail if he or she meets three or more of these criteria**.

Walking speed is also a marker of frailty: a person who takes more than five seconds to walk four metres is often frail, and at a high risk of adverse events.

In most cases, **frailty is also accompanied by a cognitive decline** and loss of muscle mass, referred to as **sarcopenia**. Above a given threshold, loss of muscle mass is accompanied by a **loss of muscle strength** and the person then becomes extremely vulnerable and his or her movements get restricted.

Sarcopenia: warning, danger!

Sarcopenia is a **reduction in muscle mass**, with fat taking the place of muscle. Its name comes from the Greek *Sarco*, which means flesh, and *Penia*, meaning loss. Sarcopenia is a natural phenomenon that starts from the age of 30 years (it is estimated that 3-8% of muscle is lost every ten years as from that time), but **accelerates after the age of 65 years**. However, this process does not affect everyone in the same way: those with a sedentary lifestyle are the most vulnerable.

Sarcopenia often results from poor diet or even malnutrition related to a lack of appetite or physical exercise. Other hypotheses have also been advanced, such as oxidative stress.

No actual drug therapy is currently available to fight muscle mass loss effectively, but a **strength training programme adjusted** to the elderly will allow people to recover muscle mass. Introducing **regular physical exercise and a balanced diet** as early as possible can help to prevent this condition. Research is under way on medicines to treat this condition.

The challenge of detection

Elderly people have a high risk of hospitalisation, placement in care homes and death. However, this **situation is not irreversible and can be improved by appropriate action**. Hence the usefulness of determining the characteristics of frail elderly individuals and then identifying them in order to correct the deficiencies observed. This can prevent the onset of a cascade of complications that will trigger dependence in an irreversible manner.

One of the aims of geriatrics is to develop tools for the **detection** of frail elderly individuals **so that intervention can be initiated as early as possible**.

The **detection** of frailty requires the **exploration of a number of functions** and will involve a multidisciplinary team: a geriatrician, nurse, physiotherapist, psychologist, etc.

Different **assessment scores** are widely used, such as:

- the MMS (Mini Mental State examination) which comprises a questionnaire on items such as temporal and spatial orientation, the immediate memorisation of three words, calculation skills, verbal fluency or reasoning,
- the ADL (Activities of Daily Living) scale that covers hygiene, dressing, washing, locomotion, continence and meal consumption,
- or the MNA (Mini Nutritional Assessment) scale that determines an individual's nutritional status.

Frail individuals: management and perspectives

The management of frail individuals requires the development of a **personalised intervention programme** that includes nutritional advice, physical exercise and integration in groups for cognitive stimulation and social activities.

Current research is focusing on defining the syndrome and its prevalence. It also addresses the development of methods, assessment criteria and standardised detection, as well as overall intervention means. Teams are either working on a specific component of frailty, or on the condition as a whole. This is the case of the work carried out as part of the MAPT study being led by Professor Bruno Vellas in Toulouse which, among other things, is measuring the impact of:

- nutritional advice,
- physical exercise,
- and cognitive stimulation,

on the decline of cognitive faculties in frail individuals.

The presentations you should not miss...

BEFORE THE CONGRESS (in the presence of leaders working on frailty and sarcopenia) –

Sunday July 5

4th International Academy on Nutrition and Age Related Diseases: IAGG Pre-Conference, Paris,
Chairmen : W.C. Chumlea, (USA), X. Hebuterne (France), P. Garry (USA), J. Morley (USA),
B. Vellas (France)

10.00 a.m. - 10.20 a.m. - Nutrition and Longevity. What We Have Learned from the New-Mexico Aging Process Study, P. Garry (USA)

10.20 a.m. -10.40 a.m. - Nutrition and Brain Age Related Disease. What We Have Learned from Epidemiological studies

10.40 a.m. -11.00 a.m. -The Mapt study Multi domain Alzheimer preventive trials S. Gillette, S. Andrieu, B. Vellas (France)

12.20 p.m. -12.40 p.m. - Nutrition and Sarcopenia W.C. Chumlea (USA)

2.45 p.m. - 3.00 p.m. - Cachexia and Age Related Disease? W. Evans (USA)

3.00 p.m. - 3.15 p.m.: Nutrition and Age Related Frailty, T. Harris (USA)

SYMPOSIA

SB6027-2 - PHYSIOLOGICAL AND METABOLIC DETERMINANT OF FRAILTY

Luigi FERRUCCI (Baltimore, MD, United States of America) Room Maillot

Monday 10.30 a.m. -12.00 p.m. Maillot Room

SB6 033 - NEW INSIGHTS INTO THE PATHOPHYSIOLOGY AND TREATMENT OF GERIATRIC ANOREXIA/CACHEXIA

Chair(s): John MORLEY (St Louis, USA), Michael SCHUSTER (New York, USA)

Monday 10.30 a.m. -12.00 p.m. - Room 351

SB6079 - DEFINING SARCOPENIA- SUMMING UP AN EVIDENCE-BASED APPROACH FROM POPULATION STUDIES

Chair(s): Zhao CHEN (Tucson, USA), Tamara HARRIS (Bethesda, USA)

Monday 5.30 p.m. – 7.00 p.m. Amphithéâtre Havane

SB6041 - APPROACHES TO FRAILTY IN THE AMERICAS

Chairs: Kenneth OTTENBACHER (Galveston, USA)

Monday 2.00 p.m. - 3.00 p.m. - Room 251

It should be noted that Howard BERGMAN will make a presentation as part of this symposium:
SB6P41-2 THE CONCEPT OF FRIALTY/ IMPORTANCE, RELEVANCE AND USEFULNESS

SB7105 - PSYCHOLOGY OF FRAILTY

Chair(s): Howard FILLIT (New York, USA), Robert BUTLER (New York, USA)

Tuesday 10.30 a.m. -12.00 p.m. - Room Maillot

SB8177 - VITAMINE D IN THE PATHOPHYSIOLOGY AND TREATMENT OF THE FRAILITY SYNDROME

Chair: Gustavo DUQUE (Penrith, Australia)

Wednesday 10.30 a.m. -12.00 p.m. - Room 242 A

KEYNOTE LECTURE - Place of sarcopenia in the frailty syndrome

Luigi FERRUCCI - National Institute on Aging (NIH) (Baltimore, United States)

Monday 9.45 a.m. – 10.15 a.m. Amphit atre Bleu

SATELLITE INDUSTRY SYMPOSIUM (compounds under development)

SAT- MERCK MSD - AGEING RELATED DISEASE: A STRATEGIC CHALLENGE

Chairs: St phanie STUDENSKI (Pittsburgh, United States), Bruno VELLAS (Toulouse, France)

12.15 p.m. - 1.45 p.m. - Maillot Room