
Integrating Frailty into Clinical Practice to Prevent the Risk of Dependency in the Elderly

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Abstract

Geriatric medicine started to be developed approximately 40 years ago when the increasing number of older adults with disability and dementia admitted to hospital emergency units threatened the sustainability of the healthcare organizations. Today, almost 90% of the geriatric medicine forces are devoted to the care of age-related disabilities. The epidemiological scenario and the high healthcare costs required for the management of dependent individuals require the adoption of strategies aimed at preventing the loss of physical function and anticipate the take in charge of older persons at risk of negative outcomes. Major medical specialties (e.g., oncology, cardiology, neurology...) have already moved to an early stage of the diseases to be more effective. Geriatric medicine must do the same moving to frailty an early stage of disability where intervention are more likely to be effective.

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With increasing life expectancy, the risk of developing severe dependency increases dramatically in our society. It is important to realize that geriatric medicine was introduced almost 40 years ago because older adults with severe disability and dementia were discharged to hospital emergency rooms. Nobody was able or wanted to take care of them. For these reasons, it was decided to build

long-term care facilities, subacute care units, acute care units, and day hospitals. Today, the number of geriatric departments is on the increase, with increasing numbers of beds and hospitals. However, in view of the prolonged life expectancy of our population and the dramatic increase in the oldest old, geriatric medicine needs revision in order to improve the management of the elderly and control the accelerating increase in the number of geriatric facilities required. However, the required funding could probably become a major barrier. Interventions should target conditions well before disability presents, since the only approach to keep adequate levels of functioning in the elderly is to prevent severe disabilities which cannot be restored.

In fact, there are three categories of older persons, and each of these categories requires different interventions.

The older adults with generally good health conditions represent approximately 50–60% of those aged more than 65 years. They present diseases such as high blood pressure, diabetes, high cholesterol levels, or a history of malignancy, which are all well controlled diseases.

The severely dependent older adults represent between 7 and 10% of older adults; they need assistance for basic activities of daily living such as walking, eating, and washing, and 95% of geriatric medicine tasks are dedicated to these patients. Of course, it is really important to take care of these patients, but at this stage their health status is often considered to be irreversible.

The frail subjects represent between 10 and 15% of older adults and those in a stage preceding frailty amount to almost 20% of those aged 65 years or more. These frail and prefrail older adults represent an important target population because they are in a condition that may be reversible at this stage but are at risk of progressing to dependency if left untreated.

We now need to target our interventions towards these frail and prefrail older adults in our aging population in order to avoid the development to severe dependency [1–9]. This was not done in the past. Most of our actions focused on dependent or healthy individuals, but frail older adults were neglected.

To provide significant action in medicine, particularly in geriatric medicine, we need to launch a strong and sustained interventions.

Targeting the Frail

Several tools have been developed in the field of frailty. They all have their advantages and disadvantages, and are very similar. We do not need a general consensus to choose the same tool. Our knowledge progresses and, similar to many other diseases, definitions are constantly adjusted. What we now need is a tool

Table 1. The Gérontopôle screening tool (from Vellas et al. [9], with permission) for the detection of frailty in the elderly

	Yes	No	Don't know
Does your patient live alone?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has your patient involuntarily lost weight in the last 3 months?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has your patient been more fatigued in the last 3 months?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has your patient experienced increased mobility difficulties in the last 3 months?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has your patient complained of memory problems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does your patient present slow gait speed (i.e. >4 s to walk 4 m)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If you have answered yes to one or more of these questions:			
Do you think your patient is frail?	<input type="checkbox"/>	<input type="checkbox"/>	
If yes, is your patient willing to be assessed for his/her frailty status at the frailty clinic?	<input type="checkbox"/>	<input type="checkbox"/>	
Patients aged 65 years and older without functional disability (Activities of Daily Living score $\geq 5/6$) and with no current acute disease.			

that is useful in clinical practice. In Toulouse, we used the Gérontopôle screening tool (table 1), which consists of two parts: the first section reminds the physician or health care professional of the risk factors for frailty, and the second section invites the health professional to classify patients as frail/at risk of further dependency according to his own experience and subjective impression. When using this tool, more than 94% of the patients referred to the geriatric Gérontopôle frailty clinics were reported to be frail or prefrail.

The Causes of Frailty

It is important to look after the causes of frailty. In fact, many age-related diseases as well as loss of functions can be associated with frailty. In table 2, the results of patients presenting at the Gérontopôle frailty clinics are summarized. It must be underlined that the mean age of the subjects is 83 years, i.e. 3 years younger than the mean age for nursing home entry in the EU, a period that is crucial to promote useful interventions. Slow gait speed, cognitive decline, weight loss, sarcopenia, undernutrition, and vision and hearing impairments are common in this population [10–18]. It is also important to note that 40% of this population live alone. A new disease was observed in nearly half of the patients and drug prescription was changed in more than one third of the subjects.

Table 2. Baseline characteristics of the patients (n = 1,108) presenting at the geriatric frailty clinics (GFC) (from Tavassoli et al. [20], with permission)

Characteristic (n = 1,108)	GFC population
Frailty status (n = 1,082)	
Not frail	69 (6.4)
Prefrail (1–2 criteria)	423 (39.1)
Frail (≥ 3 criteria)	590 (54.5)
Frailty criteria (n = 1,082)	2.6 \pm 1.4
Involuntary recent weight loss (n = 1,098)	358 (32.6)
Feeling of exhaustion (n = 1,083)	353 (32.6)
Slow gait speed (n = 1,065)	547 (51.4)
Decreased muscle strength (n = 1,084)	722 (66.6)
Sedentariness (n = 1,096)	665 (60.7)
MMSE score (/30) (n = 1,071)	24.6 \pm 4.9
CDR score (n = 1,039)	
0	353 (34.0)
0.5	531 (51.1)
1	111 (10.7)
≥ 2	44 (4.2)
MIS score (/8) (n = 1,038)	6.6 \pm 1.9
MIS-D score (/8) (n = 1,036)	6.0 \pm 2.3
ADL score (/6) (n = 1,102)	5.5 \pm 1.0
IADL score (/8) (n = 1,094)	5.6 \pm 2.4
SPPB score (/12) (n = 1,063)	7.3 \pm 2.9
Good performance (SPPB = 10–12)	272 (25.6)
Medium performance (SPPB = 7–9)	388 (36.5)
Poor performance (SPPB = 0–6)	403 (37.9)
Gait speed, m/s (n = 1,065)	0.78 \pm 0.27
Wrist strength, kg (n = 1,083)	20.6 \pm 8.2
MNA score (/30) (n = 1,048)	23.2 \pm 4.1
Good nutritional status (MNA >23.5)	550 (52.5)
Risk of malnutrition (MNA = 17–23.5)	414 (39.5)
Malnourished (MNA <17)	84 (8.0)
Vitamin D concentration, ng/ml (n = 1,065)	18.1 \pm 11.3
≤ 10 ng/ml	343 (32.2)
11–29 ng/ml	563 (52.9)
≥ 30 ng/ml	159 (14.9)
GDS score (/15) (n = 424)	4.8 \pm 3.1
Presence of depressive symptoms (GDS >5)	155 (36.6)
Abnormal distance vision (n = 1,019)	840 (82.4)
Abnormal near vision (n = 1,039)	232 (22.3)
Abnormal Amsler grid (n = 1,060)	177 (16.7)
HHIE-S score (/40) (n = 1,055)	9.5 \pm 9.8
Significant hearing impairment (HHIE-S >21)	330 (31.3)
Urinary incontinence score (/6) (n = 280)	1.7 \pm 1.4
Urinary disorders causing discomfort in everyday life (score ≥ 1)	215 (76.8)
OHAT score (/16) (n = 271)	2.8 \pm 2.4
The mouth not considered healthy (OHAT >4)	44 (16.2)

Means \pm SD or numbers of patients (%). ADL = Activities of Daily Living: from 0 = low (patient very dependent) to 6 = high (patient independent); CDR = Clinical Dementia Rating: 0 = no dementia, 0.5 = very mild dementia, 1 = mild dementia, 2 = moderate dementia, 3 = severe dementia; GDS = Geriatric Depression Scale; HHIE-S = Hearing Handicap Inventory for the Elderly-Screening; IADL = Instrumental Activities of Daily Living: from 0 = low (patient very dependent) to 8 = high (patient independent); MIS = Memory Impairment Screen, free recall; MIS-D = Memory Impairment Screen, delayed recall; MNA = Mini Nutritional Assessment; MMSE = Mini Mental State Examination; OHAT = Oral Health Assessment Tool; SPPB = Short Physical Performance Battery.

Table 3. Interventions proposed to the patients referred to the geriatric frailty clinics (GFC) (from Tavassoli et al. [20], with permission)

Intervention	GFC population (n = 1,108)
Presence of at least one medical condition requiring a new intervention (n = 1,104)	603 (54.6)
Preventive interventions proposed to the patients (n = 1,108)	2.2±1.3
Recommendation of a specialist in or out of GFC (dentist, ophthalmologist, otorhinolaryngologist, or urologist) (n = 1,101)	532 (48.3)
Recommendation of therapeutic changes (n = 1,102)	362 (32.8)
Nutritional recommendation (n = 1,105)	683 (61.8)
Physical activity recommendation (n = 1,101)	624 (56.7)
Recommendation of social intervention (n = 1,106)	284 (25.7)

Values are presented as numbers of patients (%) or means ± SD.

Sustained Interventions

To be effective, and because aging and age-related diseases are still progressing, we need to implement long-term and sustained interventions [19]. Therefore, we need the participation of the family physician and all other health care professionals. Approaches should also include physical and cognitive exercises as well as nutritional support (table 3).

One month after assessing the patient at the geriatric frailty clinics, a follow-up visit is scheduled to determine whether the frail patient has implemented the interventions. At the 3-month follow-up, the patient's activities of daily living are assessed and evaluated. These actions are always carried out in close collaboration with the family physician.

During the workshop, the option of hormonal therapy and research issues were discussed with Prof. S. Bhasin from Harvard, Boston, MA, USA, and vitamin D supplementation with Prof. H. Bishop Ferrari from Zurich, Switzerland. Rehabilitation programs and physical exercises were presented by Prof. J. Magaziner from Baltimore, MD, and Dr. Dennis Villareal from Albuquerque, NM, USA. Papers of their presentations are also included in this book.

Disclosure Statement

Consultancy to Nestlé.

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