

# Frailty in family practice/primary health care: Care and management

## Sindrom senilne astenije u praksi porodičnog lekara/primarnoj zdravstvenoj zaštiti: nega i upravljanje

Hakan Yaman

Independent scholar, (former Akdeniz University, Faculty of Medicine, Department of Family Medicine, Antalya, Turkey ), Antalya, Turkey

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### Ključne reči:

krhkost; stare osobe, 80 i više godina; primarna zdravstvena zaštita; zdravstvena zaštita, organizacija.

### Introduction

Health systems in different parts of the world are waiting for a troubled future due to the rapid ageing of the population. Health systems which are traditionally designed to care for acute health problems are forced to cover problems of co-morbidity with reduced physical and mental functions. The Frailty syndrome is now challenging health care providers like other health problems of ageing populations, which mainly cannot be treated curatively<sup>1,2</sup>.

Studies on the operational definition of frailty continue, and the balance between physical, psychological, social, and environmental factors and the health deterioration of ageing people are considered<sup>3-7</sup>.

The loss of physiological reserves and decrease of resistance to stressors leads to frailty. Even a small health problem can trigger a deterioration of the inner balance of the organism<sup>2</sup>. Complaints like involuntary body weight loss, weakness, tiredness, slowness, walking speed reduction, inactivity, and balance problems do frequently accompany physical frailty<sup>5-7</sup>. Frailty also affects other dimensions of the human being. The mental domain can present mental frailty with cognitive, mood or motivational consequences. Cognitive frailty should be distinguished from physical frailty and dementia<sup>5, 8, 9</sup>. Social frailty depends on the loss of social or general resources, self-care skills, and social behaviours and activities that an individual needs<sup>5, 10, 11</sup>.

Frailty generally increases with age. Women are more affected than men, but men are dying more of this condition<sup>12-14</sup>. Lower education, poverty, chronic diseases, and poor health status is more common in frail elderly<sup>15, 16</sup>.

Further, loss of appetite, anorexia, smoking, low alcohol consumption, chronic disease, excessive low and high body mass index are associated with frailty<sup>3</sup>.

The prevalence of frailty shows different results<sup>17, 18</sup>. According to a systematic review of 21 cohorts and about 61,500 individuals published in 2012, the prevalence was 10.7% (ranging from 4.0% to 59.1%) according to studies<sup>12</sup>.

Frailty is now accepted as a geriatric syndrome<sup>3</sup>, which has become an essential problem for health services. Unnecessary hospital admissions, emergency service visits, and intensive care units lead to overutilization of health and social care resources<sup>5, 7</sup>. Weak health infrastructure, rehabilitation, and geriatric clinical services in developing environments are enforcing this problem. Early diagnosis and proactive management of frailty are warranted to relieve the burden of this condition to the individual, their family, community, and health system<sup>19-21</sup>. Family physicians are in a unique position to contribute to the management of this increasing problem in the community. Besides the attributes as health leaders in the community, they have the opportunity to scan other members of the family and assess dimensions such as social frailty. Additionally, they will assist patients and their caregivers in supporting and guiding them through the health system<sup>3</sup>.

Besides dozens of developed Frailty scales to diagnose Frailty in community, hospital, and research setting, two main criteria exist in literature: the Phenotype of Frailty (frailty phenotype; FP) and Frailty Index (FI) models. First of them is predominantly physical (involuntary body weight loss, exhaustion, slow walking speed, weak handgrip strength, and low physical activity), while the other one is

based on the concept of frailty due to multiple diseases (accumulation of deficits due to time)<sup>15, 18</sup>.

Since a single frailty assessment tool if reliable and valid could measure only the domain of Frailty, other domains of ageing-related problems need to be evaluated with a comprehensive geriatric assessment tool. Data retrieved from these examinations will enable health care providers in the individual's health planning process<sup>2, 3, 6, 18, 22</sup>.

A smooth, practical, and short, comprehensive geriatric evaluation toolkit is preferred under these circumstances, and the Aging-Friendly Primary Health Care Toolkit developed by the World Health Organization might be a right choice in this situation<sup>20, 23, 24</sup>.

Looking deeper into the five criteria of FP shows walking speed to be highly predictive for frailty. Walking speed predicts chronic disability, length of stay in long-term care institution, falls, and survival<sup>3, 25</sup>. However, in order to increase sensitivity and selectivity, the combination of walking speed and handgrip strength has been reported as the most sensitive and selective combination<sup>3</sup>. Two measures are likely to be readily applicable in family medicine. The United Kingdom (UK) Geriatric Society (BGS) recommended a rapid gait test (4 meter), time-dependent stand-up and go test or PRISMA-7 questionnaire (sensitivities of 83%, 93% and 99%, and specificities of 83%, 62% and 64%, respectively) to detect candidates for comprehensive geriatric assessment<sup>2, 5, 26-28</sup>. Despite the limitations of the scales, a systematic review published in 2012 recommends Tilburg Frailty Indicator and SHARE-FI<sup>5, 29</sup> for use in the family medicine environment. The FI instrument is recommended for research matters<sup>5, 30, 31</sup>. In the last few years, the electronic Frailty Index (eFI), which has been tested in family medicine in the UK and has been working on electronic health records, is seen as promising<sup>27</sup>.

To trigger the screening process, the evaluation of risk factors for frailty will be more efficient (i.e. advanced age, gender, socioeconomic status, educational level, functional disability, multiple drug use, nutritional problems, weight loss, presence of co-morbidity). In case of a suspicious risk factor walking speed, handgrip strength test, stand-up and go test or PRISMA-7 can be applied for further screening<sup>26, 28</sup>. Any further positive screening is an indication for referral to a geriatric team or a community-based geriatric care service, which coordinates and provides evidence-based interventions to the frail patient<sup>3, 5, 32</sup>. In low-resource settings and emerging health systems with fast ageing populations, the family physician with available resources has to cover the management need of frail patients. They will benefit by the utilisation of a short geriatric assessment tool, recommending preventive measures (i.e. vaccines and chemoprophylactic agents), and intervening with evidence-based interventions against frailty manage these conditions<sup>23, 24</sup>.

### **Evidence-based interventions against frailty**

Physical activity and exercise are beneficial for frailty. Nine of 14 interventional community-based studies decreased frailty in a systematic review. Most components of

physical activity (i.e., strength, balance, coordination, flexibility and endurance exercises) and their combination with each other and prehabilitation interventions were found to be effective<sup>33, 34</sup>. Systematic reviews and meta-analyses evaluating multicomponent physical activities showed positive effects on frailty<sup>33-36</sup>, physical functioning and daily activities of living<sup>37-40</sup> and reduction on falls by improving walking, balance, and strength<sup>39, 41</sup>. Positive effects of physical activity on cognition, emotion and social network were found<sup>42, 43</sup>. Physical exercise provides improvements in mobility, balance, functional capacity and frailty<sup>36</sup>.

Multi-component training programs, which last 30-45 minutes a day and are practised not less than five months and three days a week, are recommended for individuals with health problems. Concerning the intensity, an exercise carried out 2-3 times a week and lasting for at least 3-6 months are effective<sup>6</sup>. However, this needs to be validated with high-quality studies with a valid definition of frailty<sup>44</sup>. Exercise interventions made as a group are reported to be better, and the combination of exercise and nutrition interventions are also useful. However, further studies are needed<sup>45</sup>.

There is a relationship between nutrition and nutrients in frailty. Carotenoid and vitamin-rich foods, as well as sufficient protein intake, have been evaluated. If healthy people, a protein intake of 25-30 g per meal or daily, 1.2 g / kg body weight are recommended<sup>46</sup>. Protein consumption is vital in elderly individuals, and inadequate protein intake causes loss of muscle, strength and bone mass, which contributes to the development of sarcopenia and frailty<sup>47</sup>. But this is not the case for middle-aged individuals; protein intake should be restricted to combat cancer<sup>48</sup>. In a systematic review covering 5,615 subjects in 30 randomised controlled trials, vitamin D supplementation (25 [OH] D) also provided a slight significant increase in general strength. The intake of 25 [OH] D in people over 65 years of age with a blood value below 30 nmol/L is recommended<sup>49</sup>. A target of at least 75 nmol/L is recommended to increase calcium absorption and enable healthy functioning of the parathyroid gland<sup>50</sup>. Positive effects of creatine on muscle ageing were observed with strength studies. Creatine increases lean body mass and was especially beneficial in the development of upper and lower body strength. Due to the increase in energy stores, the strength exercises are carried out with a higher volume, and a higher level of adaptation is achieved. It is expressed that it contributes to protein synthesis with the osmotic effects it has created. Also, it is believed that it reduces oxidative stress and inflammation. In light of these benefits, it is recommended to add creatine to the strength exercises<sup>51, 52</sup>.

### **Social support**

Advancing stages of frailty and the existence of social dependence call for the evaluation of social support. A clear analysis of the family, caregiving condition, mobility, and dependency needs to be clarified. Advanced care directives should be discussed with patients with an expected restriction in later life (i.e., dementia, cancer, etc.). Other discussions with

the patient and with the relatives may include care and caregiver requirements, self-care issues, support institutions<sup>5,53</sup> and caregivers health needs. Polypharmacy is frequently observed in individuals with frailty. The issue of inadequate drug utilisation, drug interactions or adverse effects needs to be addressed. The screening tool for the prescribing of elderly individuals (STOPP), the screening tool for the right treatment (START) and the Beers criteria are recommended to address these issues<sup>54-56</sup>.

### **Care models of frailty**

The transfer and adoption of the successful interventions offered to frail individuals require intensive efforts. There are many models implemented for this. Here are some of the models that are tested or implemented to the extent possible by countries.

#### *Integrated care*

Health services are traditionally designed to address some acute health problems. The increase in the number of multiple diseases in a single person or the lack of curative treatment will complicate the care process. In this case, the integration of fragmented service structures should be increased in order to guide the patient through the health system. The integration is a process of combination of social and health services with elderly patients. An interdisciplinary team serving here is associated with financial, administrative and clinical care. Thus, it is aimed to solve all procedures related to the patient under the same roof and at the same institution<sup>57, 58</sup>. Two services for frailty are PRISMA and SIPA, which are integrating the complex health care process of frail people<sup>59</sup>.

#### *Shared care*

This model provides close cooperation between the family physician and the specialist consultant. It is expected that the relevant clinician providing the consultation will be close to primary care. In Canada, traditionally, cooperation in mental health in family medicine can be an example of shared care<sup>60</sup>. In Canada, a shared care service for geriatric care in family medicine was mentioned in a study<sup>61</sup>.

#### *Home care service*

There are studies conducted to maintain the care of the patients at home. We provide services to resolve acute and subacute health problems at home. There are also programs where the family doctor is involved in this process. Here, he/she intervenes to the patient's general health problems and acts as a coordinator of health care<sup>59</sup>.

#### *Specialized family medicine clinics*

In cases where there is a highly specialist shortage, family physicians are specialising in specific fields (i.e., the Family Clinic Memory Clinic developed in Ontario)<sup>59, 62</sup>.

#### *Comprehensive geriatric assessment*

It is performed interdisciplinary and very detailed, if possible. All members of the team make their evaluations (geriatric, family physician, nurse, social worker, psychologist, physiotherapists, occupational therapists, dietician, etc.). The findings are discussed in team meetings. A decision on care and hospitalisation plans and complex care issues are given during this meeting. The patient is evaluated periodically, and their requirements are reviewed and the care plan updated<sup>23, 63, 64</sup>.

#### *All-inclusive care for the elderly (PACE)*

The care service is provided in the home environment, to avoid the adverse effect of hospital stays. Services such as daycare service, case management with the interdisciplinary team, integration of finance, transportation service, care house, palliative care are offered<sup>65</sup>.

#### *Acute care model of the elderly (ACE)*

Acute care model is an interdisciplinary care model directed by a geriatrist. It is one of the most frequently offered care models. It is a patient-centred care service in a home-like environment (in a hospital)<sup>66</sup>.

#### *Community nursing services*

In a setting where resources are limited, a community nurse can take care of a patient. Tasks such as early diagnosis of patients, coordination of care and case management are undertaken. The follow-up of patients is done after the care plans are prepared. Case management includes services such as active case detection, assessments, coordination, and linking between health and social services are provided<sup>20</sup>.

### **Conclusion**

The management of frailty, which has no clear treatment, is based on addressing the multi-factor structure of frailty. Evidence-based management strategies are recommending the intervention of exercise and nutrition or both in combination as the first-line approach. The interventions recommended need a unique care structure which is provided by geriatric teams or community-based teams. In low-resource settings, direct intervention by family physicians with their available resources could be expected. However, the primary role of the family physicians lies in their unique role as first – contact persons, communicators, coordinators and family-oriented care providers. Using a brief comprehensive geriatric assessment tool (i.e., The WHO Aging Friendly Primary Health Care Toolkit and derivatives) in combination with frailty screening tests will help identify candidates for further geriatric assessment and frailty management. In low resourced settings, recommendations concerning lifestyle changes (i.e., exercise and nutrition) could be prescribed directly to the patients.

### **Conflict of interest**

Author declares that he has no conflict of interest.

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