Nestlé Nutrition Institute

NEWS RELEASE

Screen and Intervene – Key Steps to Proactively Address Geriatric Syndromes

- ***Dysphagia, malnutrition, sarcopenia, and frailty are linked in a vicious cycle***
- ***Screening is the first step needed to identify vulnerable older adults***
- ***Exercising and enriching the diet, especially with proteins and vitamin D, may represent a practical way to reverse frailty***

Vevey, Switzerland, **August 2013** – At a satellite symposium during the 20th IAGG World Congress of Gerontology and Geriatrics held in Seoul in June 2013, international experts highlighted the significant problem of syndromes experienced by elderly populations, largely due to poor nutrition, and identified practical methods that can be used to screen those at risk and reverse their declining health. At the meeting hosted by the Nestlé Nutrition Institute, dysphagia – difficulty swallowing – was identified as a major contributing factor to malnutrition and sarcopenia or loss of lean muscle mass and impairment of functional status[1]. Without intervention, people typically enter a spiral of decline in which inadequate nutrition leads to sarcopenia and muscle weakness, resulting in more severe dysphagia, increasing frailty and risk of costly injury (falls, etc.) and disability.

Manage sarcopenia with exercise and nutritional supplementation

Dr Minoru Yamada of Kyoto University Graduate School of Medicine, Japan, said there are several possible causes of sarcopenia including increasing age, inactivity, poor hormonal balance, neurodegenerative diseases and malnutrition[2]. Dr Yamada described a study involving 1882 Japanese people aged 65-89 years old and showed that overall 22% (414 people) had sarcopenia. Higher prevalence occurred with greater age, increasing to 60% in the oldest age group. Notably, 43% of people with sarcopenia had experienced falls compared with just 26% in those without sarcopenia.

"Resistance training is effective against sarcopenia" he said, "but crucially the benefit is enhanced when combined with protein or amino acid supplementation; muscle strength and muscle mass increase"[3]. According to Dr Yamada, "Raising vitamin D intake in the elderly population is another means of combating sarcopenia as low levels are associated with muscle weakness and poor physical performance". Although oily fish, eggs and mushrooms for example contain vitamin D, Dr Yamada explained that intake of the required amount (6.5 µg per day) is very difficult, so supplementation is recommended[4]. Similarly, elderly people may find it a challenge to achieve sufficient protein intake. A combined protein/vitamin D supplement would therefore be very useful for improving the health of this population.

Protein plus vitamin D supplement improves muscle mass and reduces frailty: Benefits beyond exercise alone

Dr Yamada referred to a study of 77 frail elderly people with reduced muscle mass to determine the benefit of an oral nutritional supplement (ONS) enriched in vitamin D and protein, combined with resistance training (RT)[5]. The combined use of ONS plus RT was more effective for improving muscle mass and walking speed than RT alone after three months of a three-times weekly regimen. Furthermore, in the 6 months after the combined intervention, falls occurred at a significantly lower rate than in the group that had RT alone (23% vs. 49%).

The vicious cycle of dysphagia-sarcopenia-dysphagia

Dysphagia is a key cause of malnutrition leading to sarcopenia. But sarcopenia itself may weaken the muscles involved in swallowing, and lead to more severe dysphagia and the related risks of aspiration and pneumonia[6]. The importance of dysphagia management in the rehabilitation of frail elderly was addressed by Dr Hidetaka Wakabayashi of Yokohama City University Medical Center, Department of Rehabilitation Medicine, Japan. In a study of Japanese older adults with swallowing difficulty, sarcopenic dysphagia was suggested by an association between thin mid-upper arm circumference and poor swallowing function[7]. "A general reduction in lean body mass including those muscles involved in

swallowing is responsible for this association" explained Dr Wakabayashi. These results suggest the novel concept of sarcopenic dysphagia; "however, a definition and diagnostic criteria are yet to be established".

Screen for malnutrition and dysphagia to help those under threat of adverse events

An estimated 75% of dysphagia sufferers are undiagnosed, so Dr Wakabayashi emphasized the importance of identifying those elderly people at risk of, or already suffering from, dysphagia and malnutrition. The gold standard for screening elderly for malnutrition is the Mini Nutritional Assessment (MNA®), a simple 6-item questionnaire on appetite, weight loss, mobility, acute disease, depression/dementia and body mass index or calf circumference[8]. Dr Wakabayashi described a new dysphagia screening tool that has recently been developed: the 10-item Eating Assessment Tool (EAT-10). EAT-10 is a questionnaire comprising 10 questions measuring a person's perceptions of swallowing difficulty. It is designed to rapidly identify dysphagia symptom severity. A score of three or higher indicates dysphagia risk.

An EAT-10 validation study has been conducted in a Japanese population of 393 frail elderly people (130 men, 263 women), with a mean age of 83 years. The results, publication in press, were described. Only 21% (n=82) of respondents had normal swallowing; 44% (n=172) had dysphagia with aspiration (material in the airway) and 35% (n=139) had dysphagia without aspiration. "Although more testing is required, I am confident that the high sensitivity and specificity of EAT-10 will make it an effective tool for future routine screening for dysphagia" said Dr Wakabayashi. Rehabilitation is the next step for those people identified to suffer dysphagia, and multidomain intervention with oral hygiene, resistance exercise, and modified foods and liquids is important to combat sarcopenic dysphagia, prevent pneumonia, and avoid the spiral of decline into severe frailty.

Frailty can be reversed with improved nutritional status

Detecting and addressing issues with nutrition has a role in the management of frailty. "Malnutrition is an important component of the frailty syndrome[9], and it may be one of the easiest to target" said Dr Matteo Cesari of the Institut du Vieillissement, Université de Toulouse, France, as he considered the methods that can be applied to overcome physical and cognitive frailty. Physical frailty is often characterized by chronic under-nutrition[8], which can be marked by (unintentional) weight loss, sarcopenia, weakness, poor endurance and low activity levels.

In recent months, an unexpected pattern was noticed among hundreds of community-dwelling elderly people referred to a day clinic due to physical frailty issues: more than 50% also had some cognitive impairment. This finding led an international consensus group to discuss what they often see in the clinical setting: a condition described as 'cognitive frailty'. It was defined as "cognitive impairment that occurs simultaneously with physical frailty, in the absence of neurodegenerative disorders". Apparently, the physical issues (and the related propensity to be sedentary and suffer fatigue) have a negative effect on the individual's cognitive function. Importantly, unlike disability or dementia, both physical and cognitive frailty are potentially reversible states best treated by a multidisciplinary team with a multidomain approach. "We may be able to do something for the nutritional aspect of frailty" said Dr Cesari. Although 22% of elderly people are malnourished, a further 40-50% is at risk[8], so it is important to identify these people and initiate intervention.

Dr Cesari explained that two main nutrition issues are common: insufficient protein intake and vitamin D deficiency. To maintain physical function, older people have a special need for higher dietary protein intake (a minimum of 1 g/kg body weight per day). Furthermore, those with acute or chronic disease or injury may need up to 1.5 g/kg body weight per day[10]. Supplementation of vitamin D is also needed as it is helpful for maintaining proper muscle and neuromuscular function, and neurological reflexes[11]. Dr Cesari added that while the diet is at the basis of proper muscle function, other factors may affect how dietary protein is absorbed and used. Namely, meal timing and physical exercise, as well as gut microbiota, are involved in the dynamic model where nutrition impacts muscle.

Dr. Cesari concluded, "Malnutrition is reversible, so we need to look for it, and its identification should lead to further evaluation to target the causes''. He referred to data from Beck et al. (2010)[12] which demonstrated that: "By improving nutrition and oral health, and promoting exercise, people with frailty can have significant benefits in terms of physical performance, eating habits and social aspects".

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Notes to editors:

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