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EDITORIAL

SCREENING FOR MALNUTRITION (UNDERNUTRITION) IN PRIMARY CARE

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The Global Leadership Initiative on Malnutrition (GLIM) has recently defined malnutrition as a condition having at least one of 3 phenotypic criteria, i.e., non-volitional weight loss, low body mass index and reduced muscle mass, as well as either reduced food intake assimilation (either poor oral intake or malabsorption) or disease usually associated with an inflammatory process (1). The GLIM consensus is important as it is unfortunately true that malnutrition remains a "Skeleton in the closet" as its presence is poorly recognized among older individuals (2, 3). Miller et al (4) have undertaken a systematic review of screening tools for malnutrition. They categorized unintentional weight loss as being due to 3 syndromes viz cachexia, malnutrition (limited intake or malabsorption) and sarcopenia. This was despite the fact that while sarcopenia is associated with muscle loss it is rarely associated with weight loss and is often associated with weight gain leading to sarcopenic obesity (5).

The 10th edition of the International classification of Disease has recognized sarcopenia as an independent condition (6). For sarcopenia, Miller et al (4) supported the use of the SARC-F which has high specificity but low sensitivity (7-9). This is in keeping with both the recent European and International guidelines for sarcopenia (10, 11). Specificity can be improved to some extent by coupling the questions with a measurement of mid-calf circumference (12, 13). Tanaka et al (14) reported that SARC-F positive individuals had lower walking speed and walked less distance in a 6-minute walk as well as having decreased upper and lower limb strength A meta-analysis comparing SARC-F to 3 consensus definitions for sarcopenia in 12,800 persons found excellent specificity, suggesting that it is a good test for screening for sarcopenia (15). Ishii et al (16) have suggested that measuring age, grip strength and calf circumference has both excellent sensitivity and specificity for diagnosing sarcopenia. Both SARC-F and Ishii's tool are good tools to identify persons who do not have sarcopenia (17).

Before discussing cachexia it is important to recognize that all the tools used to measure lean mass have less than perfect sensitivity and specificity when compared to muscle mass measured by Magnetic Resonance Imaging (18). This is in contrast to using the D3-creatine dilution technique to measure muscle mass which has a stronger correlation with MRI measurements and with falls and gait speed (18, 19). This calls into question whether the consensus definitions for sarcopenia are flawed due to the techniques used to measure muscle mass.

Evans et al (20) defined cachexia as a "complex metabolic syndrome" due to severe disease resulting in muscle loss, "with or without fat loss." The Cachexia Score (CASCO) is identified by Miller et al (4) as the best screening test available for cachexia (21). A quicker screen which may be equally effective is the Glasgow prognostic score which consists of measuring C-Reactive Protein (CRP, >10mg/L) and albumin (<35g/dl) (22). More recently, it has been suggested that a ratio of CRP/albumin may be more sensitive (23).

Miller et al (4) conclude that the 3-MinNS developed in Singapore (24, 25) was the best screen for malnutrition out of the 19 screening tools they studied. This was because it included all the components of the malnutrition definition i.e., unintentional weight loss, nutritional intake, BMI, muscle wasting and conditions that increase the chance of having poor nutrition. The GLIM consensus provided a number of screening tests including the Nutrition Risk Screening (NRS) – 2002 (26), the Malnutrition Universal Screening Tool (MUST) (27, 28) and the MiniNutritional Assessment – Short Form (MNA-SF)(29-31). One tool has been developed to identify anorexia before weight loss occurs. This tool – the Simplified Nutrition Appetite Questionnaire (SNAQ) has been shown to be highly useful for detecting persons at risk for weight loss 6 months after testing (32-35).

In persons over 50 years of age physical frailty phenotype has been identified as a way to identify persons at risk for weight loss (36). The simple FRAIL questionnaire has been validated as a method to recognize persons who are at risk of poor outcomes (37, 38) and it is recommended by the Australian government as a screening test for all persons over 65 years of age (39). Major causes of a positive FRAIL score are sarcopenia and unintentional weight loss (40, 41).

In persons who screen positive treatable causes of weight loss should be identified. The "MEALS-ON-WHEELS" mnemonic is a simple way to recognize the common causes of weight loss (Table 1) (42, 43). Persons with sarcopenia should at the minimum be place in an exercise program including

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resistance exercise and a high protein (1-1.5g/kg) diet (43, 44). The paper by Miller et al (4) draws attention to the fact that simple screening tests are available for health professionals to recognize malnutrition early, at a time where interventions are more likely to be successful.

Table 1

"Meals-on-Wheels" mnemonic for the treatable causes of malnutrition

Medications, e.g., digoxin, fluoxetine, theophylline
Emotional – depression
Anorexia nervosa, alcoholism, elder abuse
Late life paranoia
Swallowing problems
Oral factors
Nosocomial infections, e.g., tuberculosis, H. pylori
Wandering and other dementia related factors
Hyperthyroidism, hypercalcemia, hypoadrenalism
Enteral problems, e.g., celiac disease, pancreatic insufficiency
Eating problems
Low salt, low cholesterol and other therapeutic diets
Stones (cholecystitis)

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