Agreement between nutritional risk assessment parameters and the mini nutritional assessment (MNA) in hospitalised elderly

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Malnutrition in the geriatric population is already a well known syndrome routinely diagnosed around the time of hospital admission. However, malnutrition or problems related to malnutrition in the elderly are still rarely recognised and treated in the hospital setting. Either way, it is essential for all elderly patients to undergo nutritional assessment at hospital admission. This study aimed to assess the agreement between BMI, calf circumference, arm circumference, habitual energy intake and the mini nutritional assessment (MNA) and then assess the accuracy of these parameters in relation to the MNA. The nutritional status of 132 hospitalised elderly was assessed with the MNA, BMI, calf circumference (CC) and arm circumference (AC). Their habitual energy intake (HEI) was also determined. The chi-square and the Mann-Whitney tests were used. The agreement between the nutritional risk criteria and the MNA was determined by the Kappa coefficient. The ROC curve was used to determine the accuracy of the parameters in relation to the MNA and to determine the cut-off values. The significance level was set at 5% ($P<0.05$). A little more than half the sample (54.5%) was well nourished, 34.9% were at risk of malnutrition and 10.6% were malnourished. There was good agreement only for BMI<22 (Kappa = 0.44), with an accuracy (AUC) of 0.78. No agreement was found for the other parameters, their sensitivities were shown to be low. However, CC and AC were very specific for determining the well nourished patients: the CC specificity was 86.1% and AC specificity was 94.4%. The cut-off values determined by the ROC curve were ≤ 23.2 for BMI, ≤ 26.2 for AC and ≤ 32.2 for CC. The best parameters to determine nutritional risk in relation to the MNA were AC, BMI and CC. However, these nutritional assessment parameters should be used to replace the MNA for the assessment of hospitalised elderly patients with their current cut-off points.

Variables	M + RM (MNA)** Sensitivity	Well nourished (MNA) Specificity	AUC***	Kappa
BMI <22 kg/m²	30/50 (60.0%)	54/65 (83.1%)	0.78	0.44
Calf circumference <31 cm	24/58 (41.4%)	62/72 (86.1%)	0.72	0.29
Arm circumference <P10	17/60 (28.3%)	68/72 (94.4%)	0.80	0.24
HEI/ER <75%*	32/56 (57.1%)	26/72 (36.1%)	0.51	− 0.06

*HEI/ER<75%: % of the habitual energy intake in relation to the energy requirement below 75%.
**M + RM: group of malnourished patients plus those at risk of malnourishment according to the MNA.
***AUC: accuracy (area under the curve).

1. Volkert D *et al.* (2010) *J Nutr Health Aging* **14**, 387–392.