Assessment of nutrition risk using the Mini-Nutritional Assessment Short-Form and biomarkers (prealbumin) in community-living older adults within Auckland

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Abstract

Background: The global population is ageing with New Zealand currently experiencing a large growth in those aged 65 years and older. Increasing age is associated with increasing use of health and disability support services. Vulnerable older adults are at high risk of malnutrition and may be high users of these services. With global ageing creating more economic and social pressures on countries, it is important that nutritional well-being, a key determinant of good health and healthy ageing, is maintained throughout life to sustain functional health and quality-of-life in older adults. Assessing nutrition status will help determine those at nutrition risk.

Aim: To determine the prevalence of nutrition risk in community-living older adults enrolled with The Henderson Medical Centre, a general practice in West Auckland; to determine the prevalence of dysphagia risk; and to assess the potential of prealbumin (PAB) in conjunction with C-reactive protein (CRP) as biomarkers of nutrition risk.

Method: Patients enrolled with Henderson Medical Centre were recruited into this cross-sectional study over a three-month period. Nutrition risk was determined by the Mini Nutritional Assessment Short-Form (MNA-SF), dysphagia risk by the 10-Item Eating Assessment Tool (EAT-10), and cognitive function by the Montreal Cognitive Assessment tool (MoCA). Demographic, living situation, co-morbidities, number of medications, and support services information was collected through a face-to-face interview. Serum PAB and CRP were measured and their relationship with the MNA-SF analysed.

Results: Two hundred participants, mean age 80.9±4.5 years, were recruited. Women comprised 55.5%. Two participants were categorised by the MNA-SF as malnourished and 12% categorised as at risk of malnutrition. Dysphagia risk was observed in 7.5%. 131 participants received a blood test, with a mean PAB value of 0.27±0.06g/L and mean CRP value 4.66 ±11.81mg/L. 85% of participants had a normal PAB and CRP value. No significant association was found between serum PAB values and nutrition risk status when compared.

Conclusion: One in seven community-living older adults were categorised as at risk of malnutrition. Our study found a low prevalence of nutrition and dysphagia risk indicating a generally 'well' study population. PAB and CRP did not significantly correlate with the MNA-

SF scores in this population. The results highlight the need for further studies investigating the use of PAB and CRP as nutrition biomarkers in community-living older adults.

Key words: older adults, community-living, nutrition risk, dysphagia, prealbumin, C-reactive protein

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Abbreviations

ADE	Adverse Drug Event
ANSI	Australian Nutrition Screening Initiative
AT&R	Assessment, Treatment & Rehabilitation
BMI	Body Mass Index
BMR	Basal Metabolic Rate
BRIGHT	Brief Risk Identification Geriatric Health Tool
CC	Calf circumference
CHD	Coronary Heart Disease
cm	Centimetres
CRP	C-Reactive Protein
CVD	Cardiovascular Disease
DALY	Disability-adjusted life year
DHB	District Health Board
EAT-10	10 Item Eating Assessment Tool
HDEC	Health and Disability Ethics Committee
HOPS	Health of Older People Strategy
IADL	Instrumental Activities of Daily Living
ICD-10	International Statistical Classification of Diseasesand Related Health Problems, 10th revision
kg	Kilograms
LiLACS NZ	Life and Living in Advanced Age, a Cohort Study in New Zealand
m	Metres
MCI	Mild Cognitive Impairment
MDADI	MD Anderson Dysphagia Inventory
MMSE	Mini-Mental State Examination
MNA	Mini Nutritional Assessment
MNA-SF	Mini Nutritional Assessment Short Form

MoCA	Montreal Cognitive Assessment
MoH	Ministry of Health
MUST	Malnutrition Universal Screening Tool
NHMRC	Nation Health and Medical Research Council
NRV	Nutrient Reference Values
NZ	New Zealand
NZANS	New Zealand Adult Nutrition Survey
NZBD	New Zealand Burden of Diseases, Injuries and Risk Factors Study
NZHS	New Zealand Health Survey
OECD	Organisation for Economic Co-operation and Development
PAB	Prealbumin
PEM	Protein-Energy Malnutrition
RBP	Retinol Binding Protein
RD	Registered Dietitian
SCREEN II	Seniors in the community: risk evaluation for eating and nutrition, Version II
SNAQ	Short Nutritional Assessment Questionnaire
SWAL-QOL	Swallowing Quality of Life
VFS	Videofluoroscopy
WDHB	Waitemata District Health Board
WHO	World Health Organisation