NUTRITION SCREENING AND CLINICAL OUTCOME IN A HAEMODIALYSIS POPULATION

Campbell, K, L[1 2], Zavala, L, M[1], Lawal, J[1], MacLaughlin, H[2]
[1]King's College London , [2]King's College Hospital

PROBLEM: Nutritional status is an independent predictor of poor clinical outcome in maintenance haemodialysis (HD) patients. However, in the renal literature, there is little evidence supporting the use of recommended nutrition screening tools, such as Malnutrition Universal Screening Tool or 'MUST' (MAG, 2003) not only to identify risk of malnutrition, but also for its prospective validity.

PURPOSE: This study investigated MUST risk categorisation (low, med, high) and prediction of clinical end-points (mortality, morbidity) in HD patients over a three-year period (2005 – 2008).

DESIGN: Retrospectively, a cohort of 225 patients (age 60.6 +/- 15.6 years) was established at baseline (July 2005) (excluding patients on HD <3 months, hospitalised or CRP >50 mmol/L to exclude scoring for disease acuity). Sixty-five percent (n=151) of the sample had documented three to six month weight change and body mass index (BMI) to enable MUST calculation, utilising original scoring (MUST) and a modified version for HD (renal-MUST; BMI <22kg/m^2 at medium risk (Ash, 2006)). Risk of death was assessed by Cox proportional hazards model.

FINDINGS: Over the study period there was 26.8% mortality. Both variations of MUST were significantly related to mortality, with the high-risk ratings resulting in 5.7 to 7.6 times greater risk of death over the three year follow-up period (p<0.001) (Table 1). There was a significant trend associated with risk classification and morbidity (length of stay) for renal-MUST only.

Table 1: Relationship between nutrition screening and clinical outcome in a cohort of HD patients

	MUST			Renal-MUST		
	Low-risk n=122	Med-risk n=15	High-risk n=14	Low-risk n=106	Med-risk n=30	High-risk n=15
Died n(%)	28 (23%)	3 (20%)	9 (70%)	21 (20%)	9 (30%)	10 (67%)
HR (95% CI) death*	reference	1.5 (0.4-5.5)	5.7 (2.6-12.8)[a]	reference	2.1 (1.0-4.7)[b]	7.6 (3.4-16.8)[a]
LOS/year, med(IQR)[†]	6.0(1.7-16.9)	3.0 (1.0-17.8)	12.5(0-21.0)	6.2(1.9-17.7)	3.0(1.0-16.1)	12.7(1.2-27.1)[b]

* Hazard ratio adjusted for age, comorbidities (Charlson Index), dialysis vintage, ethnicity and gender.
[†]Length of stay (unplanned admissions); median/year (inter-quartile range); analysis using K-W ANOVA.
[a] p<0.001 [b] p<0.05

CONCLUSION: These results indicate the original and renal-MUST are both independent predictors of clinical outcome in terms of survival, particularly for high versus low-risk classification. Renal-MUST variation was more sensitive to predicting clinical outcome than the original MUST tool.

RELEVANCE: This investigation is the first prospective validation of the MUST in renal patients, adding to the body of evidence for the value of routine nutrition screening, due to the independent relationship between nutritional risk and clinical outcome.

REFERENCE:

MAG (2003). The 'MUST' Report. Available from: www.bapen.org.uk/must_tool.html
Ash S, Campbell K, MacLaughlin H et al (2006) *Evidence-based practice guidelines for the nutritional management of chronic kidney disease* Nutr Diet. 63:S35-45.