

NUTRITIONAL RESEARCH IN COLLABORATION WITH THE NHS

DISEASE RELATED MALNUTRITION

Generating new evidence to demonstrate
the role of nutrition support in optimising
patient and health economic outcomes

**Intended for Healthcare
Professional use only**



A MULTI-CENTER PROSPECTIVE STUDY OF PLANT-BASED NUTRITIONAL SUPPORT IN ADULT COMMUNITY-BASED PATIENTS AT RISK OF DISEASE-RELATED MALNUTRITION

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Introduction:

There is an emerging need for plant-based, vegan options for patients requiring nutritional support.

Method:

Twenty-four adults at risk of malnutrition (age: 59 years (SD 18); Sex: 18 female, 6 male; BMI: 19.0kg/m² (SD 3.3); multiple diagnoses) requiring plant-based nutritional support participated in a multi-center, prospective study of a (vegan suitable) multi-nutrient, ready-to-drink, oral nutritional supplement (ONS) [1.5kcal/mL; 300kcal, 12g protein/200mL bottle, mean prescription 275mL/day (SD 115)] alongside dietary advice for 28 days. Compliance, anthropometry, malnutrition risk, dietary intake, appetite, acceptability, gastrointestinal (GI) tolerance, nutritional goal(s), and safety were assessed.

Results:

Patients required a plant-based ONS due to personal preference/variety (33%), religious/cultural reasons (28%), veganism/reduce animal-derived consumption (17%), environmental/sustainability reasons (17%), and health reasons (5%). Compliance was 94% (SD 16). High risk of malnutrition ('MUST' score≥2) reduced from 20 to 16 patients ($p=0.046$). Body weight (+0.6 kg (SD 1.2), $p=0.02$), BMI (+0.2 kg/m² (SD 0.5), $p=0.03$), total mean energy (+387 kcal/day (SD 416), $p<0.0001$) and protein intake (+14 g/day (SD 39), $p=0.03$), and the number of micronutrients meeting the UK reference nutrient intake (RNI) (7 vs. 14, $p=0.008$) significantly increased. Appetite (Simplified Nutritional Appetite Questionnaire (SNAQ) score; $p=0.13$) was maintained. Most GI symptoms were stable throughout the study ($p>0.06$) with no serious adverse events related.

Conclusion:

This study highlights that plant-based nutrition support using a vegan-suitable plant-based ONS is highly complied with, improving the nutritional outcomes of patients at risk of malnutrition.

A SYSTEMATIC REVIEW AND META-ANALYSIS OF THE EFFECTS OF COMMUNITY USE OF ORAL NUTRITIONAL SUPPLEMENTS ON CLINICAL OUTCOMES

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Introduction:

The impact of oral nutritional supplements (ONS) on patients with complications (disease related morbidity) requires further exploration.

Method:

This systematic review included 44 randomised controlled trials (RCT) (29 RCT surgical, 15 RCT medical patients) examining the effect of ONS in community settings on the incidence of complications (n = 716, mean age 67 years, range 35–87).

Results:

ONS (mean intake 588kcal/day, range 125–1750; protein 22g/day, range 0–54; mean energy from protein 22%, range 0–54) were prescribed for a mean 74 days, range 5–365. Most RCT (77%) reported fewer complications in the ONS group versus control. Meta-analysis (39 RCT) showed ONS consumption reduced complications including infections, pressure ulcers, wound and fracture healing (OR 0.68, 95% CI 0.59,0.79; p<0.001). Results showed reductions when ONS were used in hospital and community settings (OR 0.72, 95% CI 0.59,0.87; p = 0.001) or just in the community (OR 0.65, 95% CI 0.52, 0.80; p<0.001). Reductions in complications were only seen with high ONS adherence ≥ 80% (OR 0.63, 95% CI 0.48,0.83; p = 0.001) and ready-to-drink ONS (OR 0.69, 95% CI 0.60,0.81; p<0.001).

Conclusion:

This systematic review and meta-analysis show community-based use of ONS in addition to the diet substantially reduces the incidence of complications. The diversity of ONS, patient populations and complication outcomes within the trials included in this review mean further research is warranted.

ADULTS WITH IMPAIRED GASTROINTESTINAL FUNCTION SHOW IMPROVEMENTS IN GASTROINTESTINAL SYMPTOMS AND PROTEIN INTAKE WITH A HIGH-PROTEIN, PEPTIDE-BASED ORAL NUTRITIONAL SUPPLEMENT

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Introduction:

Provision of feeds containing hydrolysed, peptide-based proteins and medium-chain triglycerides (MCT), can help mitigate gastrointestinal (GI) intolerance in adults with impaired GI function, maldigestion and/or malabsorption. This study evaluated a high-protein, peptide-based, MCT-containing oral nutritional supplement (PEHP; 15kcal/ml and 7.5g protein/100ml).

Method:

Adults with impaired GI function were recruited by their managing dietitian and took PEHP orally for 28-days, with GI tolerance, compliance, weight, energy and protein intake assessed via non-validated questionnaires and a 24-hour dietary recall at baseline and at intervention end.

Results:

Fifteen, adults (56 years (16), 67kg (26.0), 24kg/m² (7.6)) took part in this study. Intensity of nausea ($Z = -2.070$, $p=0.038$, $n=15$) and abdominal pain ($Z = -2.236$, $p=0.025$, $n=15$) improved significantly compared to baseline. Reductions in the intensity of diarrhoea, constipation, vomiting, flatulence, and burping were observed but were not statistically significant ($p>0.05$ for all). Compliance was higher with PEHP (81% (24)) than baseline feeds (63% (42)) but not significantly. Weight remained stable between baseline (67kg (26)) and at intervention end (67kg (27), $p=0.414$, $n=15$). Compared to baseline, total energy intake increased with PEHP albeit not significantly (1661kcal/day (572) vs 1981kcal/day (592), $p=0.137$, $n=15$). Increases in total protein intake were also observed, this time significantly (61g/day (23) vs 78g/day (29), $p=0.042$, $n=15$).

Conclusion:

This study in adults with impaired GI function found that PEHP improved GI tolerance and protein intake compared to feeds taken at baseline (including both polymeric and peptide-based feeds).

ECONOMIC IMPACT OF IMPLEMENTING MALNUTRITION SCREENING AND NUTRITIONAL MANAGEMENT IN OLDER ADULTS IN GENERAL PRACTICE

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Published in The Journal of Nutrition, Health & Aging (2020), Vol. 24 (3): p305-31 (Abridged)

Introduction:

Malnutrition is a common and significant public health problem, especially for older adults, as the consequences are costly. National guidelines (NICE CG32/QS24) highlight the need to identify and manage malnutrition, the implementation of which was deemed “high impact to produce cost savings”. The ‘Malnutrition Pathway’, endorsed by NICE and other professional bodies, is a practical evidence-based guide to help community healthcare professionals (HCP) to implement guidance on malnutrition management. Published evaluations of its use are needed.

Method:

This service evaluation in older adults assessed the impact of implementing the ‘Malnutrition Pathway’ on health care use and costs, as well as the acceptability of the management strategies and effect on malnutrition risk. 5 GP surgeries were recruited in Gloucestershire. 163 older adults (80±9 years) with a range of primary diagnoses, living in their own home, were screened using the Malnutrition Universal Screening Tool (‘MUST’) (n50 low risk (LR); n41 medium risk (MR); n72 high risk (HR)). All patients were managed according to risk (LR: no further management; MR: dietary advice (DA); and HR: DA plus two oral nutritional supplements (ONS) (1 serve 300kcal, 18g protein; 125ml). At each review (6weeks, 3 and 6 months), ‘MUST’ score, compliance and satisfaction to their management plan were recorded. Healthcare use was collected from GP records 6 months before and after implementation of the pathway. A simple cost analysis was completed.

Results:

Implementing appropriate management of malnutrition led to significant reductions in hospital admissions ($p=0.028$), length of hospital stay ($p=0.05$), GP visits ($p=0.007$) and antibiotic prescriptions ($p=0.05$). Over 6 months, the costs to manage malnutrition (HCP time, ONS) were more than offset by the savings associated with these reductions in health care use (per patient savings of -£395.64 MR+HR; -£997.02 HR). The proportion of individuals at risk of malnutrition reduced over time, and patients reported being satisfied with the DA (97%) and ONS (96%), consuming 90% of their ONS prescription.

Conclusion:

Managing malnutrition significantly reduces healthcare use, with a positive budget impact, in older malnourished patients in primary care. This represents an opportunity to improve patient care with benefit on health care spend.

LOW VOLUME ENERGY DENSE ORAL NUTRITIONAL SUPPLEMENTS IMPROVE MICRONUTRIENT INTAKES IN FREE LIVING MALNOURISHED OLDER PEOPLE – A RANDOMISED TRIAL

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Presented at ESPEN 2017. Published in *Clinical Nutrition* (2017), Vol. 36: S175-176

Introduction:

We have previously shown that low volume energy dense oral nutritional supplements (ONS) significantly increase intakes of energy and protein with little suppression of food intake¹, but the effect on micronutrients requires further investigation.

Method:

308 older people (>50y) recruited through GPs (age 71.5±10.7y; BMI 19.4±2.5kg/m², Charleston Comorbidity Index (CCI) 1.02±0.93, 67% female) at risk of malnutrition ('MUST') were randomised to low volume ONS (Fortisip Compact range, Nutricia; 2.4kcal/ml) plus dietary advice (DA) (as a diet sheet) (n154; ONS group) or DA alone (n154; DA group) for 12 wks. At baseline, 4, 8, 12 wks, food and total intake were measured, micronutrient intakes analysed and compared to EFSA reference values where available. Percentage difference between groups over 12wks for 25 micronutrients was calculated (trace elements (n7), minerals (n5), vitamins (n13)), along with the extent to which ONS intake was additive to the diet (2). Intention to treat analysis was undertaken (controlled for baseline, age, sex, 'MUST', CCI), results presented as mean±SE.

Results:

Total micronutrient intake was significantly higher in the ONS group compared to the DA group (for all except sodium, chloride, vitamin B12). Overall 92±4% of the ingested ONS was additive to food intake with no difference in intakes of micronutrients from food between groups (-1 ± 1%; NS). Total intake in the ONS group exceeded that of DA group by 40±5% overall (46±7% vitamins, 43±8% trace elements, 19±7% minerals). Over 12wks, 86% of micronutrients (18/21) met EFSA values in the ONS group compared to 43% in the DA group (9/21) (p=0.004).

Conclusion:

This large randomised trial shows that malnourished free living older people are unable to achieve adequate micronutrient intakes from food alone, and the addition of low volume energy dense ONS is effective at significantly improving intakes, helping them to meet recommended reference intakes.

References:

(1) Smith TR et al, *Clin Nutr Supp* 2017, Vol 36: S7-8; (2) Stratton & Elia 1999. *Clin Nutr* 18, 29-84.

GP PATIENT DATABASES SHOW THAT MALNUTRITION IS UNDER-REPORTED AND UNDERTREATED IN PATIENTS WITH CHRONIC DISEASE

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Presented at BAPEN 2016. Published in *Clinical Nutrition ESPEN* (2017) Vol. 22: p120-121. (Abridged)

Introduction:

Disease-related malnutrition is a significant, common and costly problem^{1,2}, with most of those affected living in the community (93%)¹ and under the care of a GP. Patients with chronic disease are particularly vulnerable and it is recommended that they are routinely screened and appropriately managed (including the use of nutrition support³). This study investigated the recorded prevalence of malnutrition and use of nutrition support products in UK community-based malnourished adults with chronic diseases.

Method:

Electronic longitudinal GP patient data (IMS Information Solutions UK Ltd) was collected from April 2014 - March 2015, from 1,150,744 adults (76% 19-65 years, 24% 65+ years) registered with UK GP practices. Patients with a read code for stroke, COPD, dementia/Alzheimer's or cancer, were identified as malnourished if they had a BMI of <18.5kg/m² and/or a read code for malnutrition recorded in the GP database. Prescriptions of nutrition support were also assessed.

Results:

Overall, 43.5% (501,098) of patients had a BMI recorded, 2.9% (33,877) were identified as malnourished and 0.9% (10,507) were receiving nutrition support. The documented prevalence of malnutrition in patients with chronic disease ranged from 7%-15%, and of these, 18%-34% were prescribed nutrition support (see Table 1).

Table 1 – Malnutrition prevalence and use of medical nutrition

Chronic Disease (n)	Number (%) of malnourished patients	Number of malnourished patients who had a prescription for nutrition support
Cancer (11,262)	904 (8%)	270 (30%)
COPD (29,047)	3001 (10%)	537 (18%)
Dementia (14,339)	2161 (15%)	741 (34%)
Stroke (41,540)	3108 (7%)	627 (20%)

Conclusion:

This is the largest survey of GP records to assess recording of malnutrition and prescription of nutrition support in adults with chronic diseases in the UK. Malnutrition was common, but overall prevalence was lower than previously reported in GP practices⁴, possibly due to under-reporting, lack of screening, or the malnutrition criteria used (i.e. lower BMI cut off). The data also suggests under-treatment of malnutrition as more than two thirds did not receive a prescription for nutrition support, although the use of other dietary strategies/dietetic intervention could not be assessed.

References:

1. Elia M, Russell C. BAPEN, 2009. 2. Elia M. BAPEN, 2015. 3. NICE. CG32, 2006. 4. McGurk P, et al. Proc Nutr Soc 2011; 70 (OCE5).