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Introduction

Enhanced Recovery After Surgery (ERAS) principles are now well established in most surgical cohorts. After pancreatico-duodenectomy (PD) it is recommended that patients should receive artificial nutritional support if they are not consuming >60% of their nutritional requirements by day 7-10 post operatively (1). Clinical trials identify poor oral intake in the post-operative setting (2-4). Weight loss and muscle wasting are associated with poor adjuvant chemotherapy completion rates (5, 6). This study aimed to identify if oral diet targets can be met with specialist dietetic support and if there are any areas for clinical improvement.

Methodology

Patient demographics, nutritional status, dietary intake, surgical and oncological outcomes and survival were collected over a 24-month period. Approval for the study was received from the London-Surrey Research ethics committee (21/LO/0139). Data analysis was carried out in SPSS (version 28, IBM, US) using descriptive statistics and Shapiro-wilk tests for normality and Mann Whitney, paired and independent sample T tests for timepoint comparisons.

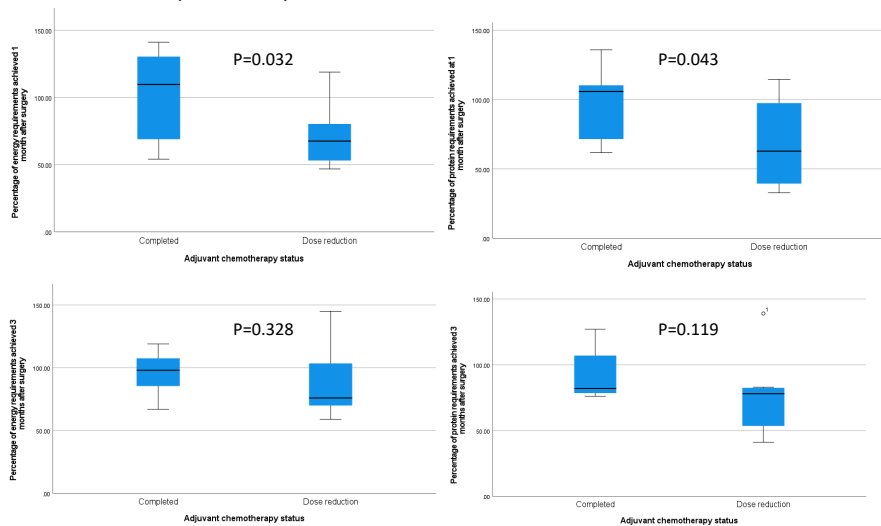


Figure 2: Energy and protein intake at one month and three months and outcome of adjuvant chemotherapy following pancreaticoduodenectomy.

References: 1. Melloul et al, World journal of surgery. 2020;44(7):2056-84. 2. Su et al, Medicine (Baltimore). 2017;96(41):e8206. 3. Fujii et al, Annals of surgical oncology. 2015;22(12):3905-12. 4. Berberat et al, Journal of gastrointestinal surgery : official journal of the Society for Surgery of the Alimentary Tract. 2007;11(7):880-7. 5. Pin et al, Curr Opin Support Palliat Care. 2018;12(4):420-6. 6. Morita et al, BMC cancer. 2019;19(1):416.

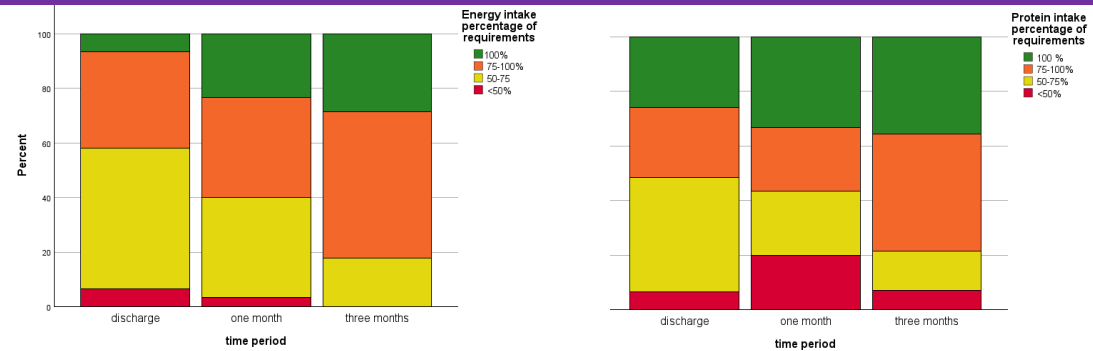


Figure 1: Proportion of patients meeting their energy and protein requirements on discharge and at one month following pancreaticoduodenectomy (n=31).

Results

Thirty-five patients (71% male, mean age 66 (SD 9.5) years) due to undergo PD in a tertiary centre were recruited to this observational study and were reviewed regularly by a specialist pancreatic dietitian.

Pre-operatively malnutrition occurred in 63% of cases. Diabetes was diagnosed in 19% and iron deficiency in 55%. Dietary changes were implemented in 77% of patients, 92% were commenced on pancreatic enzyme replacement therapy (PERT), 1 patient was admitted for naso-jejunal (NJ) feeding and 17% commenced on oral nutritional supplements (ONS).

Post-operatively, 9 patients were NJ fed due to failure to tolerate adequate diet, 5 received parenteral nutrition (PN) and 4 were discharged home with NJ feeding. On discharge only 1 patient met >60% of their energy requirements with diet, 54.8% (n=17) exceeded 60% with ONS, 14% were unable to consume sufficient energy with ONS and 11% refused ONS or more aggressive nutritional support.

Twenty-two patients (71%) went home on 5 different ONS matched to their individual needs and tastes by experienced dietitians. PERT was prescribed with all polymeric ONS.

Energy intake (as a percentage of requirements) improved between discharge and one month (71.9% (SD 19.1) to 84.6% (SD 29.9), p=0.025). Only 9 patients (27%) met their nutritional requirements one month after discharge. Poor oral intake one month after surgery was significantly associated with dose reduction in adjuvant chemotherapy for both energy (p=0.032) and protein (p=0.043).

Conclusion

Nutritional recovery under the supervision of specialist dietitians was still insufficient but improved faster than in published clinical trials(2-4). Based on the ERAS guidelines, a further 29% of our patients should have commenced artificial nutrition before discharge.

Future work should explore techniques to improve nutritional recovery to support adjuvant chemotherapy.

Poor dietary intake when quantified as a proportion of individual energy requirements should be considered in the nutritional assessment of patients following pancreatico-duodenectomy.

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