Gastroduodenal

DUODENAL-JEJUNAL BYPASS LINER THERAPY (ENDOBARRIER®) CAUSES REDUCTIONS IN PLASMA TRIMETHYLAMINE-N-OXIDE IN OBESE PATIENTS WITH DIABETES

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Introduction Trimethylamine N-oxide (TMAO) is formed in the liver from trimethylamine, and is exclusively generated by gut microbiota from the metabolism of dietary carnitine and choline. Elevated plasma levels have been implicated in the pathogenesis of Type 2 Diabetes and cardiovascular disease. The Endobarrier is an endoscopically implanted duodenal jejunal bypass liner (DJBL) designed to mimic the effects of bariatric surgery leading to significant weight loss and improvements in glycaemic control and we present novel data of its effects on the plasma metabolic profile of these patients.

Methods The Endobarrier Trial (NCT02459561) is a large multicentre, randomised controlled trial across two sites in the UK which recruited 170 patients with Type 2 Diabetes and BMI 30–50 kg/m². Participants were randomised to receive the DJBL (n=85) for one year or conventional medical therapy, diet and exercise (n=85). Plasma samples were collected from all participants at baseline, 6 months and 1 year and analysed using 1H NMR spectroscopy and multivariate statistical analysis to identify key metabolic perturbations between both patient cohorts.

Results A total of 112 patients were followed up for one year. 309 plasma samples were processed and then analysed. A typical 1H NMR plasma spectrum is shown in figure 1. Reduction in plasma concentrations of trimethylamine N-oxide (TMAO) were found in the DJBL group at 6 months and 1 year compared with the control group.

Conclusions Raised levels of Plasma TMAO have been associated with the development of diabetes and in this study were found to reduce following 6 months and 1 year of DJBL therapy compared with controls. This is the first study of its kind to explore alterations in the metabolic profiles of patients receiving the DJBL by utilising high field 1H nuclear magnetic resonance (NMR) spectroscopy technique.

These results may provide a possible insight into the mechanisms of how this device may elicit its effect on weight loss and glycaemic improvement, by reducing plasma TMAO and potentially altering the gut microbial metabolic function.

ENDOSCOPIC ULTRASOUND IN DIAGNOSIS AND FOLLOW-UP OF GASTRIC SUB-EPITHELIAL LESIONS: RESULTS FROM A REGIONAL CENTRE

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Introduction Gastric subepithelial lesions (SEL) have a broad differential including malignant disease. Endoscopic ultrasound (EUS) ± fine needle aspiration (FNA) has become essential in assessing and managing SELs. The optimum assessment and follow-up strategy for lesions <20 mm remains unclear. Our aim was to assess surveillance strategy outcomes by lesion size (<10, 10–20 and >20 mm) of patients undergoing EUS for gastric SELs in our regional centre.

Methods We undertook a retrospective analysis of our prospectively collected regional EUS database of patients who underwent EUS for SELs. Electronic patient records were analysed using 1H NMR spectroscopy and multivariate statistical analysis to identify key metabolic perturbations between both patient cohorts.

Results 132 patients underwent EUS for an SEL identified on endoscopy (96.2%) or CT scan (3.8%). Mean age was 59 years with 31 (44%) male. 81 (64%) underwent endoscopic biopsy pre-EUS. Mean lesion size was 23.2 mm. All patients were followed up for a minimum of 12 months.
18 (13.6%), 58 (43.9%), and 54 (40.9%) lesions were <10 mm, 10–20 mm and >20 mm respectively. Three patients had EUS reported as normal/submucosal thickening only.

78 of the 81 biopsy results of SELs at initial endoscopy provided no diagnostic value. 47 (35.6%) patients underwent FNA of lesion, (0%, 12% and 72% of patients for size <10 mm 10–20 mm and >20 mm respectively). 3 (3.8%) SELs were not sampled due to patient factors. 27 (57%) of EUS-FNAs were diagnostic: 20 (42.5%) were proven GIST, 3 (6.3%) leiomyoma, 3 (6.3%) other malignancy and one lipoma. Only 2 (28%) FNAs of lesions <20 mm were diagnostic.

All patients with SELs <20 mm all survived, except four who died of unrelated causes. Two had a resection and 36 underwent surveillance. Of the 53 patients with SELs >20 mm, 17 had resection/Imatinib, 25 underwent surveillance and two died of other causes.

Conclusion EUS is a useful tool in the assessment, diagnosis and follow-up of small SELs. Management of lesions <20 mm remains controversial, however our patients with SEL <20 mm had no clinical sequelae and no EUS findings of concern during follow-up of at least one-year. Diagnostic yield of FNA for lesions <20 mm was low which suggests a more conservative, surveillance approach may be appropriate.