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Abstract

TITLE: Endoscopic Proximal Intestinal Exclusion Can Improve Non-Alcoholic Fatty Liver Disease (NAFLD) in Patients With Diabesity

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ABSTRACT BODY:

Abstract Body: Introduction:
The increasing prevalence of NAFLD paralleling the diabesity pandemic demands new effective therapies. The aim of this study was to investigate the impact of an endoscopic proximal intestinal liner (endobarrier), with or without additional glucagon-like peptide-1 receptor agonist (GLP-1RA) therapy on NAFLD.

Methods:
Adults with suboptimally controlled type 2 diabetes (HbA1c≥58mmol/mol, ≥7.5%) and obesity (BMI≥35kg/m^2) despite GLP-1RA therapy (liraglutide 1.2mg daily) were randomised to (1) additional proximal intestinal exclusion using a novel endoscopic device, endobarrier; (2) endobarrier without GLP-1RA; (3) escalated dose liraglutide (1.8 mg daily). All groups underwent the same initial 2-week diet. Participants were seen 3-monthly. Changes in weight, HbA1c and NAFLD fibrosis score (NFS) were calculated over 3 months within groups. The NFS is a non-invasive composite score using the following parameters: age, BMI, diabetes status, ALT:AST, platelets and albumin which categorises patients as low risk (NFS <-1.455), high risk (>0.675) or indeterminate risk for fibrosis (interval values). A sub-group underwent MRI to evaluate hepatic fat fraction before and 4 months after endobarrier. Hepatic fat fraction was calculated by 3 blinded independent assessors using 3 regions of interest.

Results:
Of 55 patients, groups 1 (n21), 2(n17) and 3(n17) were matched for age (51.0±11.8, 49.9±8.6, 55.1±6.9 years), BMI (40.5±4.9, 41.2±4.4, 41.3±4.8kg/m^2), sex (% male 42.9, 29.4, 41.2) and ethnicity (% Caucasian 66.7, 58.8, 76.5). In corresponding groups, over 3 months, weight fell by 8.8±4.3kg from 113.0±20.6kg to 104.2±20.4kg (P<0.0001), by 7.9±3.6kg from 116.2±18.4kg to 108.3±18.7kg (P<0.0001) and by 3.6±3.3kg from 116.3±15.7kg to 112.8±15.5kg (P<0.0001); HbA1c fell by 21.4±11.0mmol/mol (2.0±1.0%) from 81.7±13.8mmol/mol (9.6±1.3%) to 60.3±10.8mmol/mol (7.7±1.0%) (P<0.0001), by 1.9±14.1mmol/mol (0.2±1.3%) from 75.9±20.9mmol/mol (9.1±1.9%) to 73.9±16.9mmol/mol (8.9±1.5%) (P=0.6) and by 15.2±15.0mmol/mol (1.4±1.4%) from 81.6±16.4mmol/mol (9.6±1.5%) to 66.4±13.9mmol/mol (8.2±1.3%) (P=0.0007). Overall, 23.6% had a NFS regarded as high risk and 10.9% as low risk for fibrosis. High risk NFS reduced to 12.7% and low risk increased to 32.7%. By subgroup, NFS reduced by 0.6(-0.02 to 1.4), P=0.001, by 0.6(-0.01 to 0.9), P=0.004 and by 0.1(-0.1 to 0.6), P=0.19 in groups 1, 2 and 3 respectively. Of 8 patients undergoing MRI liver, there was a reduction in hepatic fat fraction by 87.5±25.2% from 15.9±9.4% to 2.9±4.5% (P=0.003).

Conclusion:
Despite previous suboptimal response to GLP1RA therapy there was improvement in NFS by 3 months in those treated with endobarrier. Endobarrier was effective at reducing hepatic fat fraction. These data suggest that proximal intestinal exclusion may be an effective future treatment for patients with NAFLD.

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Disclosure Status

The following authors have completed their 2016 DDW disclosure:: Bu Hayee: Disclosure completed | Piya Sen Gupta: Disclosure completed | Edward Fogden: Disclosure completed | Mark Anderson: Disclosure completed | Amit Roy: Disclosure completed | Daniel Butler: Disclosure completed | Ramdeep Bajwa: Disclosure completed | Stephanie Amiel: Disclosure completed | Robert Ryder: Disclosure completed