Duodenal Mucosal Resurfacing demonstrates sustained improvement in glycaemic parameters in type 2 diabetes: 12 month data

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Duodenal exclusion via bariatric surgery has been shown to confer an insulin sensitizing metabolic benefit that is, in part, weight-independent. Duodenal Mucosal Resurfacing (DMR) is an endoscopic procedure that resurfaces the duodenal mucosa through hydrothermal ablation and may confer similar metabolic benefits using a less invasive procedure in subjects with type 2 diabetes (T2D).

Objective
To assess 12 months glycaemia following a single DMR procedure in patients with uncontrolled T2D.

Methods
Study Single arm, open label, multicentre study.

Subjects Patients aged 25-75 years with T2D, HbA1c 7.5-10.0%, and on oral glucose-lowering medication.

Duodenal Mucosal Resurfacing
Step 1. Duodenal mucosal lifting
Step 2. Mucosal circumferential ablation 9cm

Glucoregulatory medication Sulfonylureas were discontinued 4 weeks before DMR. Other glucose lowering medication was kept stable for ≥6 months post DMR with subsequent medication modifications following local/international guidelines.

Postprocedural diet Graduated diet for 2 weeks post DMR.

Efficacy analysis In the ablation cohort (patients receiving ≥1 ablation (3cm); n=27) and a subgroup (n=15) with preserved β-cell function (fasting plasma insulin [FPI] >15uU/ml) we analysed HbA1c, fasting plasma glucose (FPG), homeostasis model assessment index (HOMA-IR), and BMI at 3, 6, 9 and 12 months post DMR.

Ablation cohort (n=27): Age 55.0±9 years, HbA1c 8.7±1.0%, BMI 32.5±4.2 kg/m² (mean±SD).

Preserved β-cell function subgroup (n=15): Age 56.1±6.7 y, BMI 33.1±4.4 kg/m², HbA1c 8.9±1.2% (mean±SD).

12 months post single DMR procedure, glycaemic improvement was sustained:
- HbA1c 0.9-1.4%; FPG 37-49 mg/dL

Conclusion
A single DMR procedure produced sustained reductions in HbA1c, FPG, and HOMA-IR out to 12 months, with more pronounced glycaemic effects observed in patients with preserved β-cell function. Larger, randomized controlled studies are planned to further establish the efficacy, safety and durability of the metabolic effects associated with DMR.

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