

A.C.G. van Baar<sup>1</sup>, J. Devière<sup>2</sup>, G. Costamagna<sup>3</sup>, M.P. Galvão Neto<sup>4</sup>, H. Rajagopalan<sup>5</sup>, L. Rodriguez<sup>6</sup>, R.J. Haidry<sup>7</sup>, U. Beuers<sup>1</sup>, J.J.G.H.M Bergman<sup>1</sup>. On behalf of Revita-1 Investigators.

<sup>1</sup>Department of Gastroenterology and Hepatology, Academic Medical Center, Amsterdam, the Netherlands; <sup>2</sup>Department of Gastroenterology, Erasme University Hospital, Brussels, Belgium; <sup>3</sup>Department of Digestive Endoscopy, Policlinico Gemelli, Catholic University of Rome, Rome, Italy; <sup>4</sup>Bariatric Endoscopy Service, Gastro Obeso Center, São Paulo, Brazil & Florida International University, Miami, FL, United States of America; <sup>5</sup>Fractyl Laboratories Inc., Lexington, MA, USA; <sup>6</sup>Department of Surgery, CCO Clinical Center for Diabetes, Obesity and Reflux, Santiago, Chile; <sup>7</sup>Department of Gastroenterology, University College Hospital, London, United Kingdom.

## Background

Duodenal mucosal resurfacing (DMR) is an endoscopic intervention that elicits metabolic improvement in type 2 diabetes (T2D), likely through an insulin sensitizing mechanism. A first-in-human single center study has reported robust improvements in glycemic control after DMR.<sup>1</sup> A lowering of hepatic transaminase levels has also been observed after DMR.

## Objective

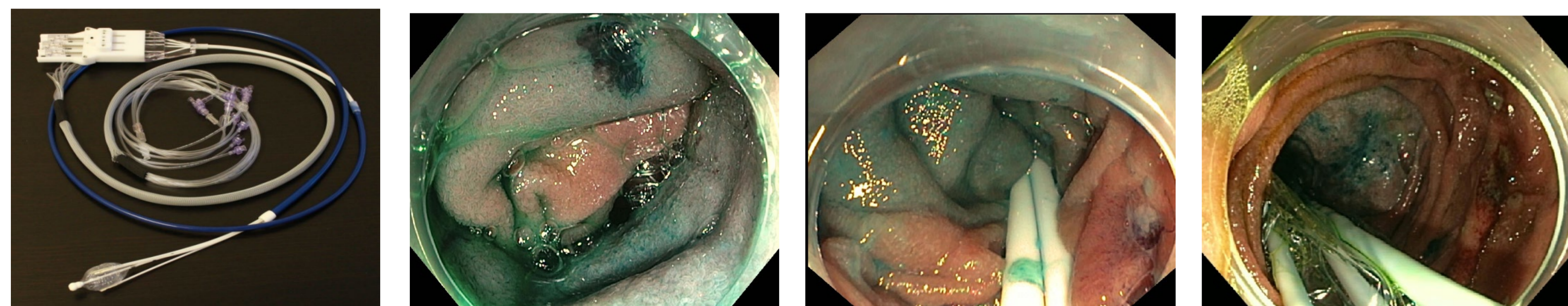
To report the hepatic transaminase levels in T2D patients 6 months post-DMR.

## Methods

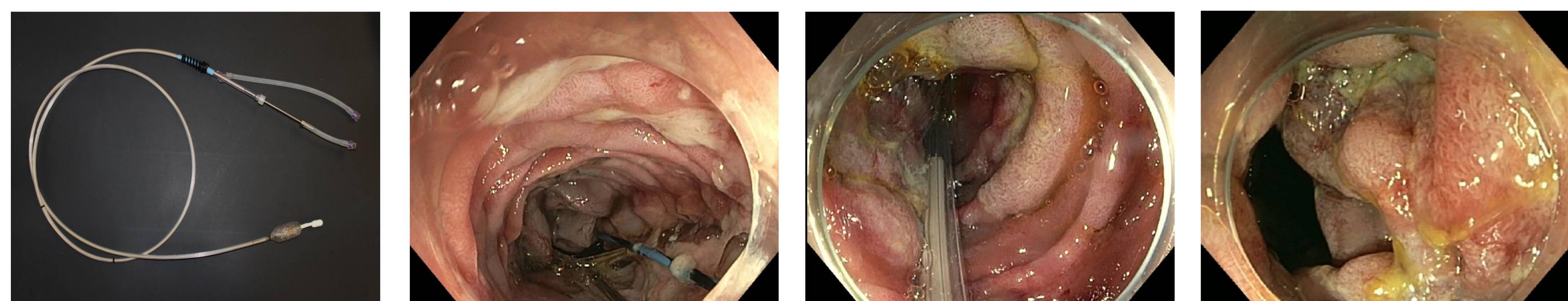
**Patients** Composite of 2 clinical studies in subjects with T2D with a minimum follow-up of 6 months: a single-site first-in-human (FIH) study and the subsequent multicenter Revita-1 (R1) study.

### Duodenal Mucosal Resurfacing

Step 1. Duodenal lumen sizing and lifting.



Step 2. Mucosal thermal ablation (length 9 cm).



### Medication & diet

Sulfonylurea (SU): Stopped 4 weeks before DMR to mitigate hypoglycemia risk.

Proton pump inhibitor: 1 week before until 4 weeks after DMR.

Diet: Graduated diet for 2 weeks post DMR.

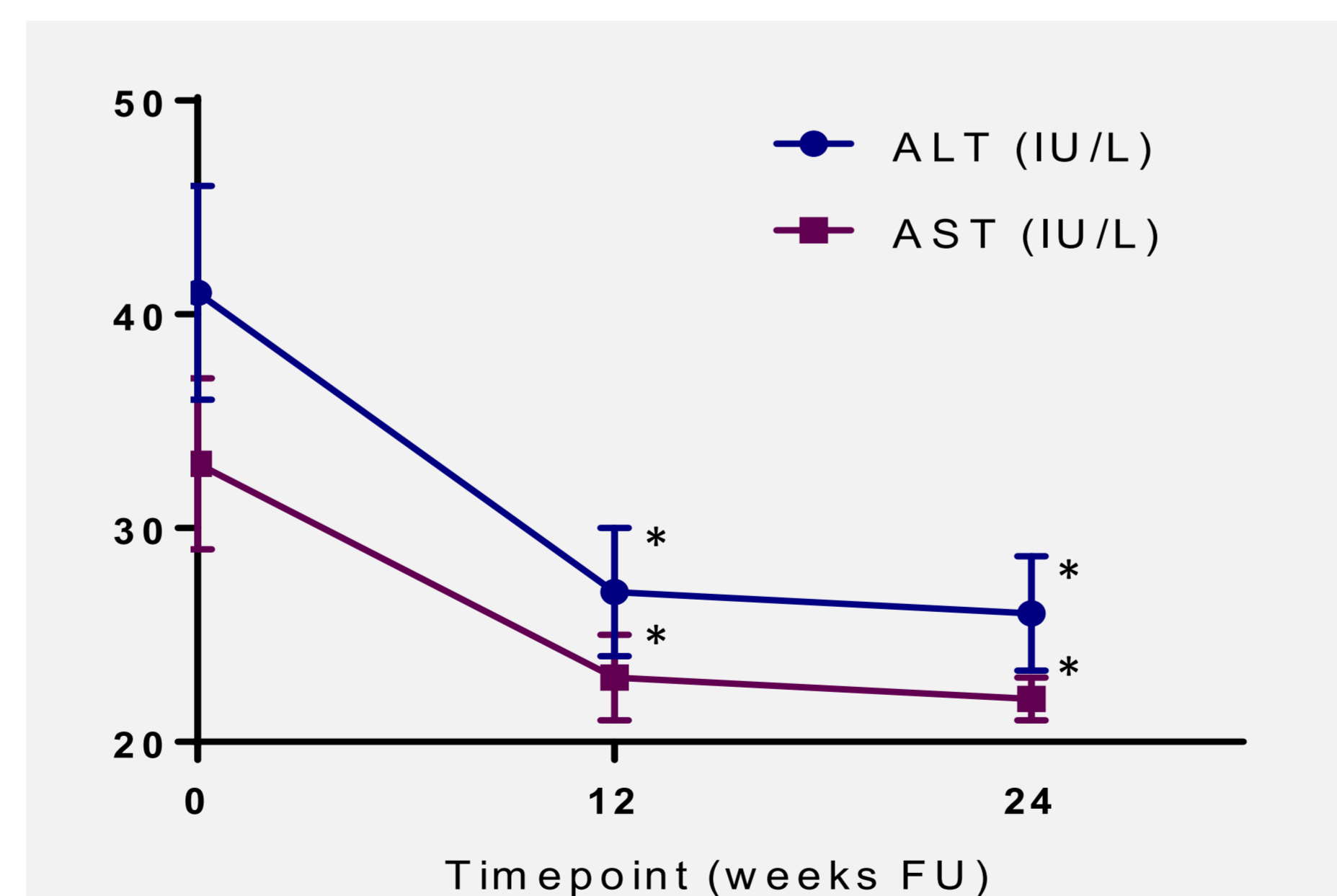
• Baseline characteristics from FIH and R1 subjects are shown in Table 1.

• In 23 FIH subjects who showed pre-procedural ultrasound (US) findings compatible with steatosis, hepatic transaminase levels decreased significantly (Figure 1, below).

• Hepatic transaminase levels decreased or remained low after DMR across all baseline levels (Figure 2, middle).

• Metabolic indices improved after DMR (Figure 3, right).

**Figure 1. Hepatic transaminase levels in patients with US proved steatosis**

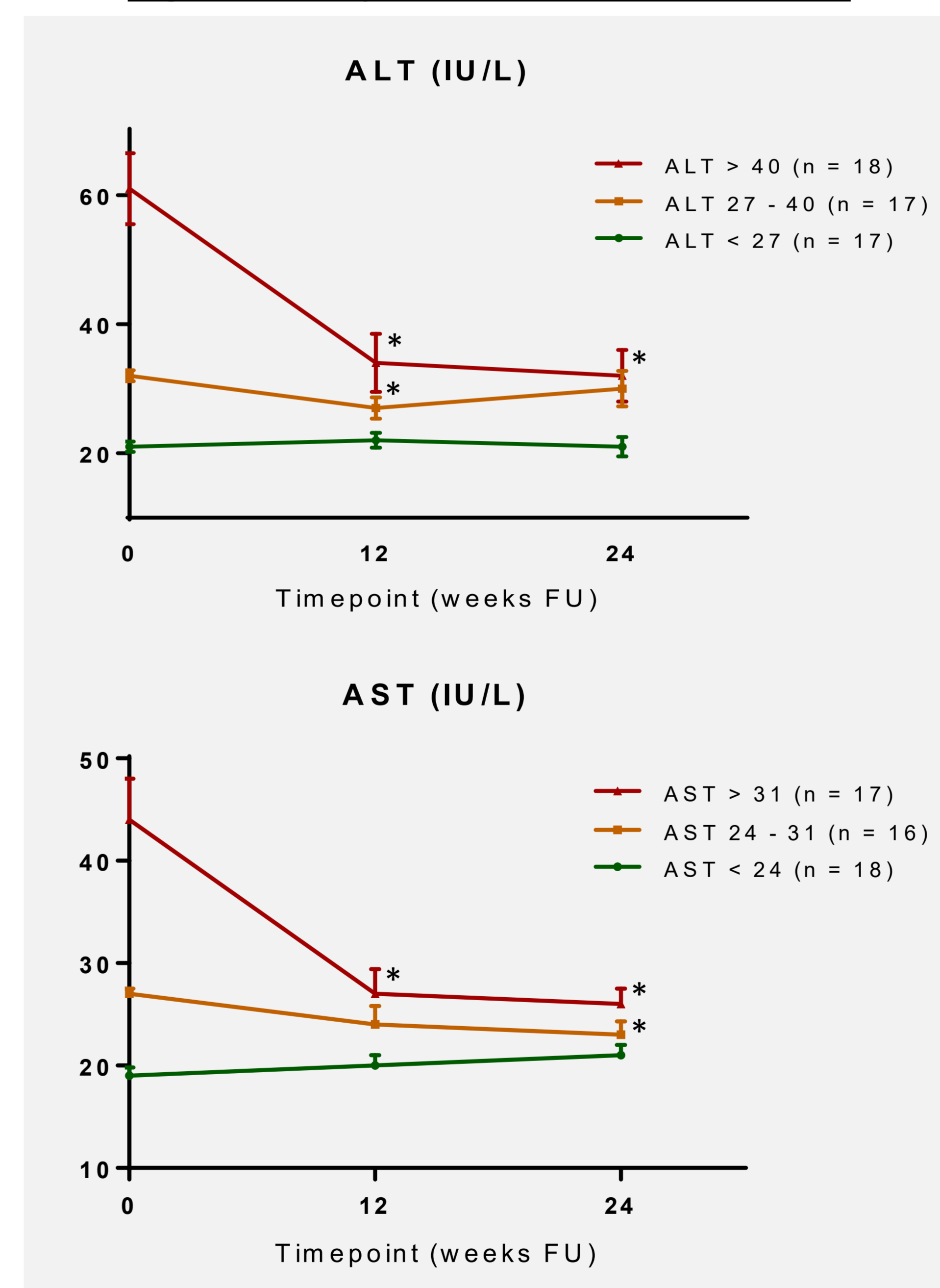


## Results

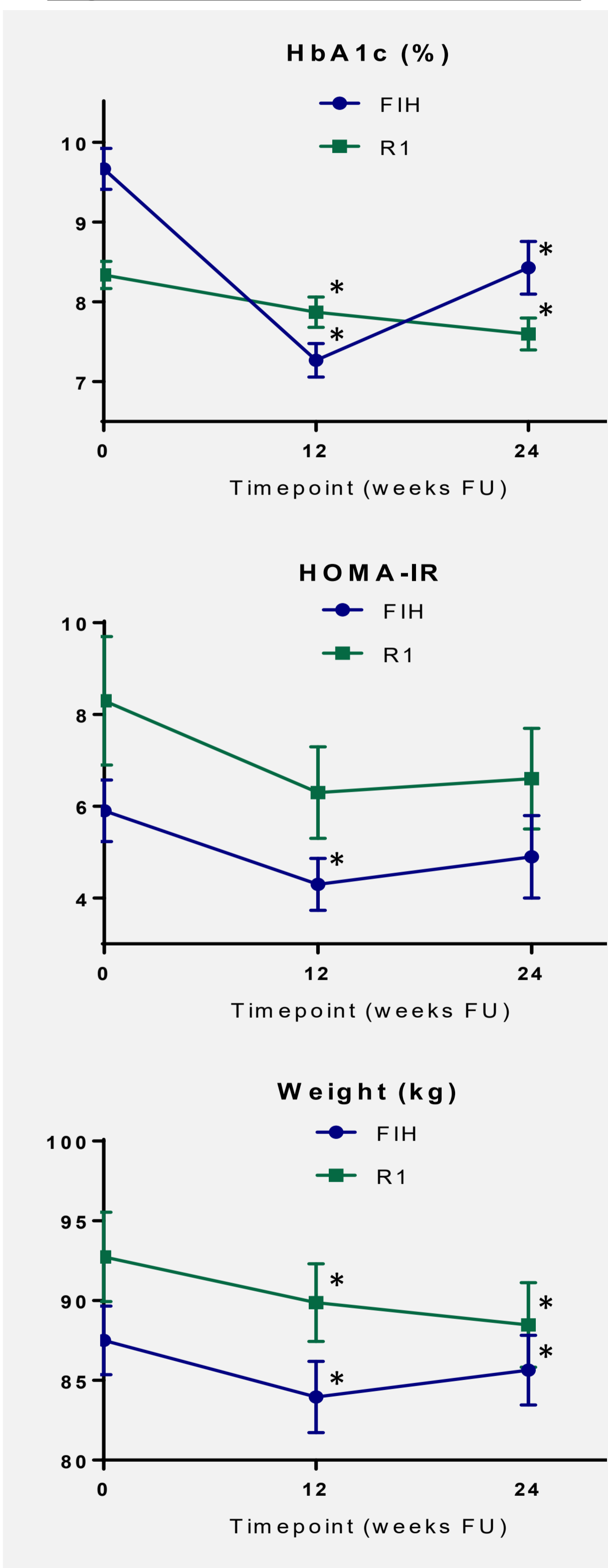
**Table 1. Baseline characteristics**

	FIH (n=30)	R1 (n=22)	Significance
Age (years)	52±1.4	56±1.8	p = 0.075
Duration of T2D (years)	5.6±0.5	6.4±0.5	p = 0.877
BMI (kg/m <sup>2</sup> )	32±0.9	32±0.7	p = 0.340
HbA1c (%)	9.7±0.3	8.4±0.2	<b>p = 0.009</b>
HOMA-IR	5.9±0.8	8.0±1.4	p = 0.163

**Figure 2. Hepatic transaminase levels**



**Figure 3. Metabolic indices**



Data are presented as mean ± SEM. \*p < 0.05 compared to baseline. HbA1c: glycated hemoglobin. HOMA-IR: homeostasis model assessment of insulin resistance.

## Conclusion

**DMR is a minimally invasive procedure that improves both glycemic markers and markers of fatty liver disease in subjects with T2D. A single duodenal mucosal resurfacing procedure resulted in a decrease of liver transaminases. This unique endoscopic intervention deserves further study to ascertain its potential efficacy as a treatment for fatty liver disease.**

