Sitagliptin, a dipeptidyl peptidase-4 inhibitor, in patients with short bowel syndrome and colon in continuity: an open-label pilot study

Supplementary material

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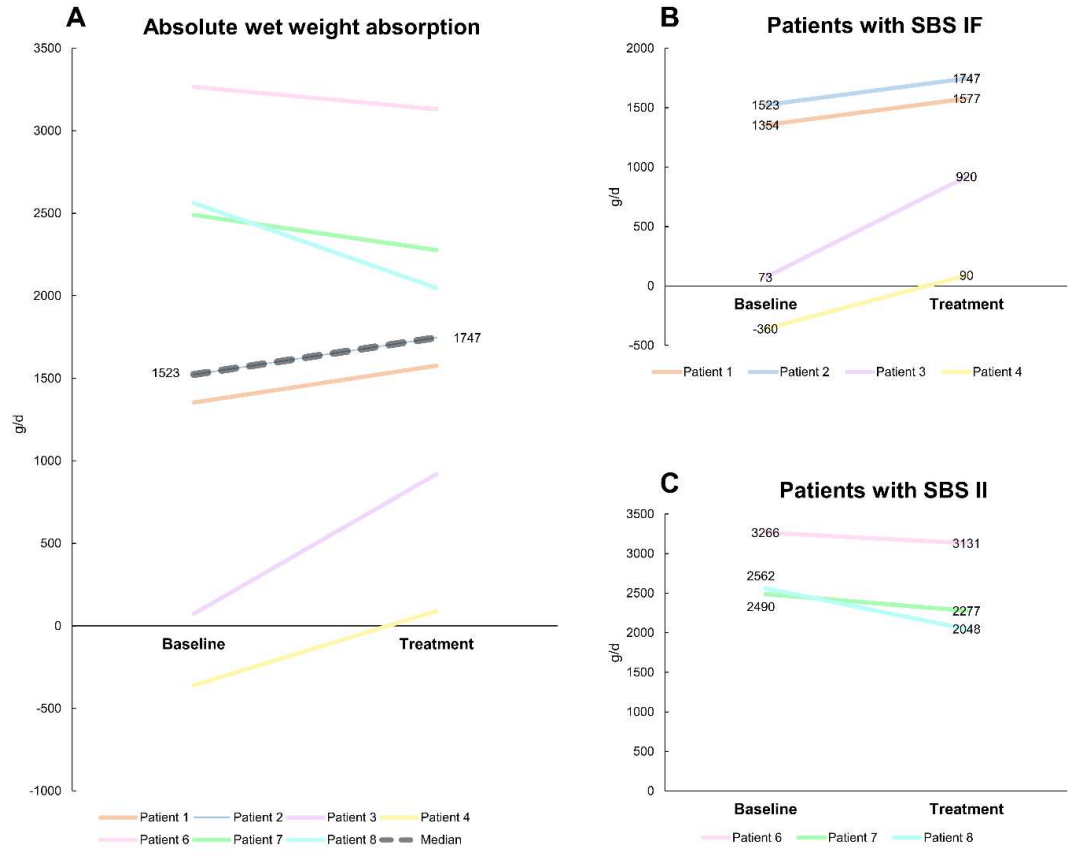
Details on hormone analyses

All samples were extracted in a final concentration of 70% (GLP-1, PYY, GIP and glucagon) or 75% (GLP-2) ethanol before measurements. Total GLP-1 immunoreactivity was measured as described previously[1] using a radioimmunoassay (antibody code no. 89390) specific for the C-terminal part of the GLP-1 molecule and reacting equally with intact GLP-1 and the primary (N-terminally truncated) metabolite. Intact GLP-2 was measured using an in-house developed radioimmunoassay as originally described.[2] The antiserum (code no. 92160) is directed against the N-terminus of GLP-2 and therefore measures only fully processed intestinal GLP-2. Total PYY was measured as previously described[3] using a monoclonal antibody MAB8500 (Abnova, clone RPY-B12), which reacts equally well with $PYY_{1–36}$ and $PYY_{3–36}$. Synthetic human $PYY_{3–36}$ (Bachem, cat no. H-8585) was used as standard and ^{125}I-labeled PYY (Perkin Elmer, cat no. Nex341) as tracer. Total GIP concentration was measured with a radioimmunoassay using an antibody directed towards the C-terminal (code no. 80867), which reacts fully with intact GIP and N-terminally truncated forms.[4] For glucagon measurements we used a C-terminally directed antiserum (code no. 4305), therefore measuring glucagon of pancreatic origin.[5] Sensitivity for all assays was below 1 pmol/L, and intra assay coefficient of variation below 10 %.

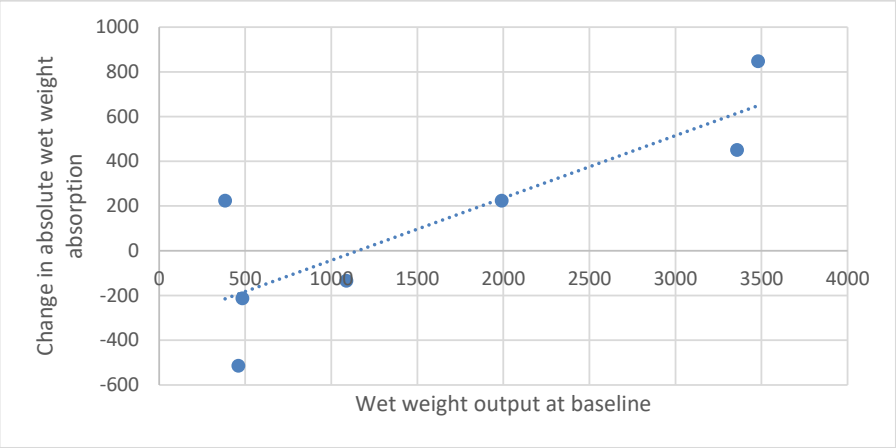
Supplementary table 1: Body weight and body composition.

	Baseline	Treatment	Effect	P-value
Lean body mass (kg)	45.1 (28.3, 56.4)	46.6 (29.6, 55.2)	0.3 (-1.2, 1.5)	0.091
Fat mass (kg)	20.4 (15.1, 44.1)	19.1 (16.6, 44.3)	-0.7 (-2.2, 1.5)	0.310
BMD (g/cm^2)	1.006 (0.628, 1.157)	1.022 (0.610, 1.168)	-0.014 (-0.033, 0.016)	0.310
Body weight (kg)	74.0 (52.3, 88.0)	74.3 (52.2, 90.0)	0.3 (-0.2, 2.0)	0.116

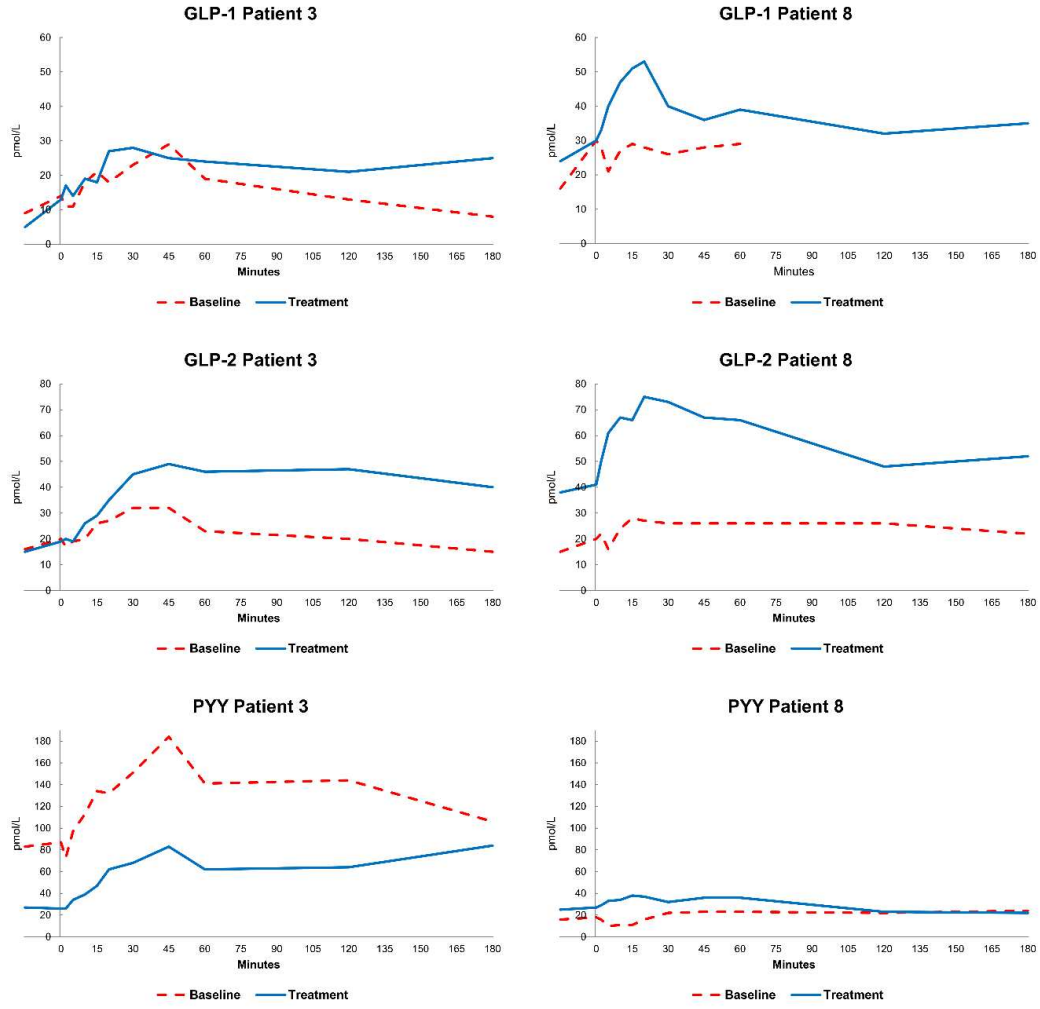
Data is presented as median (min, max). BMD = bone mineral density.



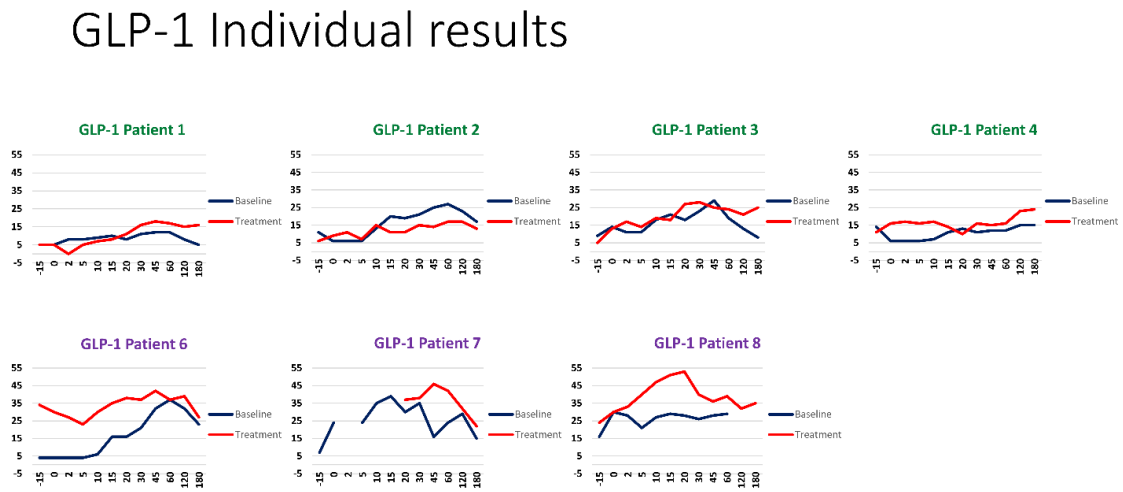
Supplementary figure 1: Changes from baseline to treatment in absolute wet weight absorption. A: all patients with SBS (n=7). B: patients with SBS-IF (n=4). C: patients with SBS-II (n=3).



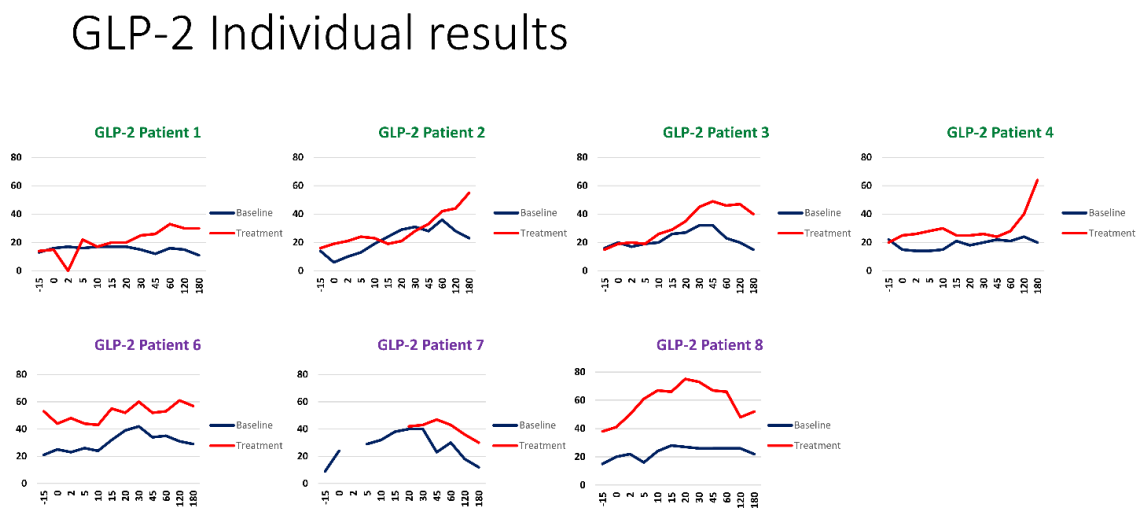
Supplementary figure 2: Spearman correlation between faecal wet weight output at baseline and change in absolute wet weight absorption following treatment with sitagliptin.



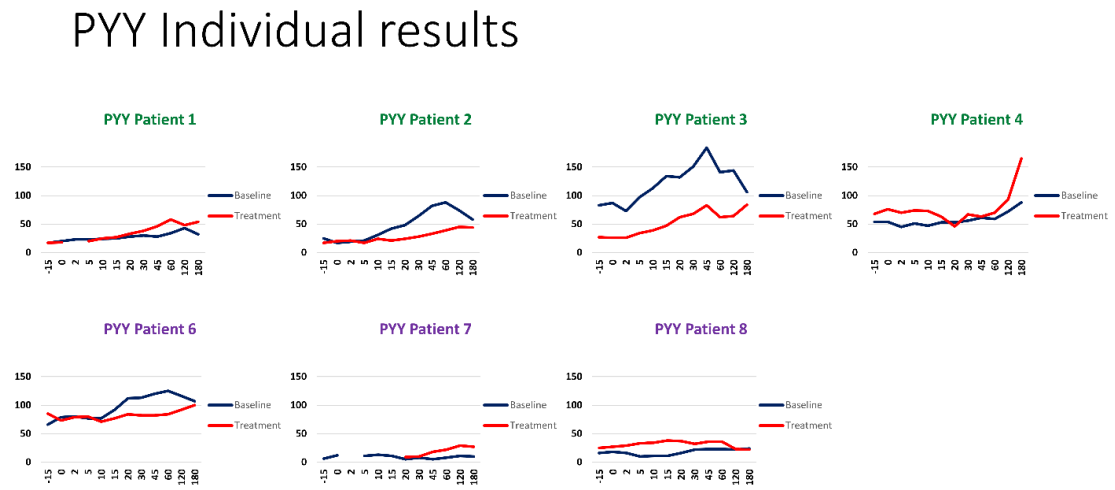
Supplementary figure 3: Postprandial hormone profiles at baseline and after treatment for patient 3 and patient 8. GLP = glucagon-like peptide; PYY = peptide YY



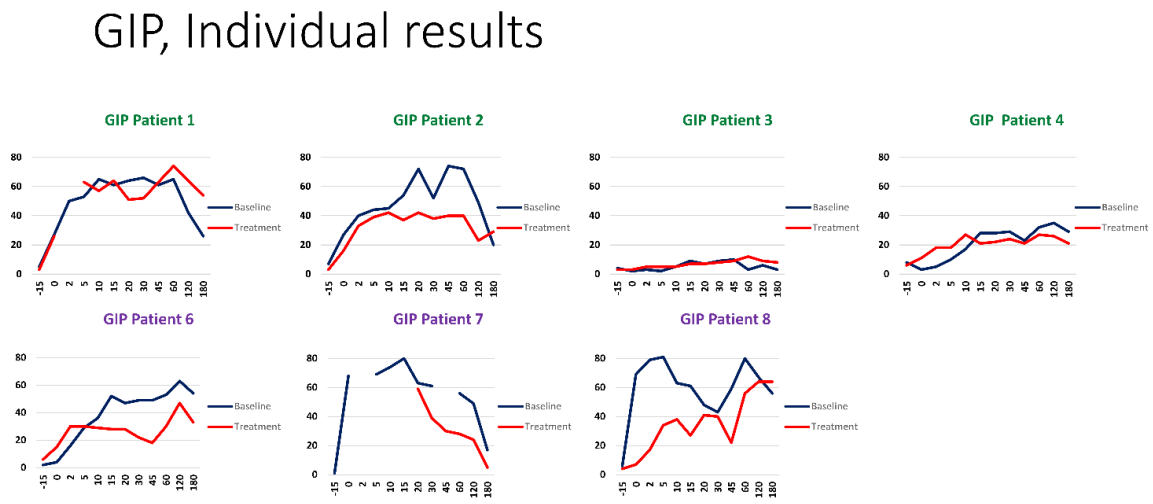
Supplementary figure 4: Individual postprandial hormone profiles at baseline and after treatment with sitagliptin. GLP = glucagon-like peptide



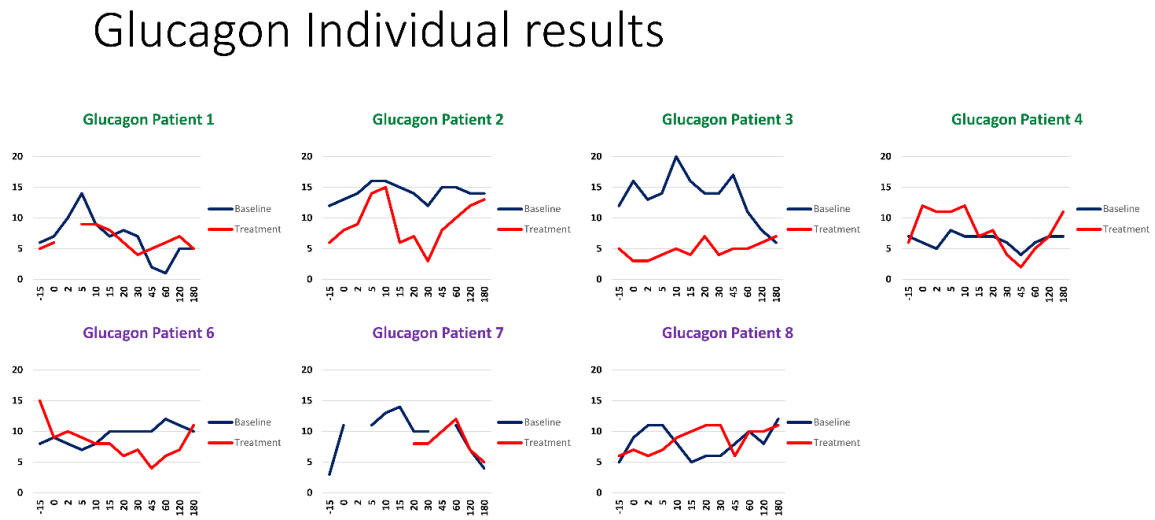
Supplementary figure 5: Individual postprandial hormone profiles at baseline and after treatment with sitagliptin. GLP = glucagon-like peptide



Supplementary figure 6: Individual postprandial hormone profiles at baseline and after treatment with sitagliptin. PYY = peptide YY



Supplementary figure 7: Individual postprandial hormone profiles at baseline and after treatment with sitagliptin. GIP = glucose-dependent insulinotropic peptide



Supplementary figure 8: Individual postprandial hormone profiles at baseline and after treatment with sitagliptin.

References

1. Orskov C, Rabenhøj L, Wettergren A, et al. Tissue and plasma concentrations of amidated and glycine-extended glucagon-like peptide i in humans. *Diabetes.* 1994;43(4):535–9.
2. Hartmann B, Johnsen AH, Ørskov C, et al. Structure, measurement, and secretion of human glucagon-like peptide-2. *Peptides*. 2000;21(1):73–80.
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4. Lindgren O, Carr RD, Deacon CF, et al. Incretin hormone and insulin responses to oral versus intravenous lipid administration in humans. *J Clin Endocrinol Metab*. 2011;96(8):2519–24.
5. Orskov C, Jeppesen J, Madsbad S, et al. Proglucagon products in plasma of noninsulin-dependent diabetics and nondiabetic controls in the fasting state and after oral glucose and intravenous arginine. *J Clin Invest*. 1991;87(2):415–23.