Glucagon Clearance is Preserved in Type 2 Diabetes

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Supplemental Material Supplemental Tables: 1; Supplemental Figures: 4

Parameter	Population estimate	Between-subject variability
Vd (L)	8.04 (8.4)	0.244 (14)
Bbody weight, Vd	1.1 (20)	
B _{glucose, Vd}	0.403 (35)	
CI (L*min ⁻¹)	1.27 (5.2)	0.152 (14)
B _{body weight, Cl}	0.797 (17)	
B _{glucose, Cl}	0.441 (19)	
EG (pmol*min ⁻¹)	10.3 (11)	0.551 (15)
B _{HOMA-R, EG}	1.02 (23)	
Additive error (pmol*L ⁻¹)	1.63 (9.4)	
Proportional error	0.0687 (9.3)	

Table S1. Population pharmacokinetic parameters

Coefficients regarding Figure 3. Data is presented as mean (relative standard error (%)). $B_{body weight, Vd}$, bodyweight influential parameter on Vd. $B_{body weight, Cl}$, bodyweight influential parameter on Cl. $B_{glucose, Cl}$, plasma glucose influential parameter on Vd. $B_{HOMA-IR, EG}$, HOMA-IR influential parameter on EG. Cl, clearance for a 70 kg person. EG, endogenous glucagon secretion. HOMA-IR, homeostasis model assessment insulin resistance. RSE, relative standard error. Vd, population volume of distribution for a 70 kg person.

Supplemental figure S1.



Simplistic overview of the pharmacokinetic model, assuming one-compartment distribution of glucagon.

Supplemental figure S2



Comparison of observed and predicted glucagon pharmacokinetics. Visual predictive check for glucagon concentrations vs time in minutes. Glucagon infusion was initiated at time 0 min. The lines depict the 5th, 50th and 95th percentiles of observed (blue lines) and predicted (dashed black lines) glucagon concentration vs time. The colored areas represent the 95% confidence interval around the simulated percentiles (i.e. dashed black lines) of the 5th and 95th percentiles (blue areas) and 50th percentile (pink area) of the median predicted glucagon concentration vs. time.

Supplemental figure S3





Figure S3. Individual visual predictive checks for model fit. Each subfigure represent an individual fit derived from the pharmakokinetic model (purple line) compared to the factual measured glucagon values in each of the 32 subjects (blue dots).

Supplemental figure S4



Figure S4: Comparison of analyses made with RIA (4305, grey curve, open symbols) and ELISA (Mercodia, black curve, solid symbols) kits.