Subcutaneous growth hormone (GH) injection: GH pharmacokinetics in GH treated children

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Aim: to measure the bioavailable immunoreactive GH serum concentration after sc injection in relation to injected GH dose in GH treated children.

Background: The current administration of GH is daily subcutaneous (sc) injection at bedtime. The variation in uptake of injected GH both within and between patients is hardly known.

Results

Interindividual variation
115 patients, 403 GH curves

Cmax 74 mU/L, CV 36%; Tmax 4h, CV 35%; AUC 16h 554 mU/L, CV 51%.

Intra-individual variation.

GH curves from one male, GHD patient.

Material

23 girls 59 curves
92 boys 344 curves

Study population: 115 patients (92 boys, 23 girls), followed yearly 2-8 times 1992-99.

Study design: GH, Genotropin® pen 4/16, needle 12mm, dose 33 or 67 μg/kg/d sc injected at 18.00 by patient, 90° deep sc in thigh. GH serum-sampling every 2nd h until 16h after inj.

Conclusions

A great intra and inter-individual variability in GH uptake from sc injection was found.

Methods

Pharmacokinetics: estimated by Tmax(h), Cmax(mU/L), AUC 0-16h above baseline (AUC16h) (mU/L).

GH-assay: analysed by Pharmacia Polyclonal assay, IRP 80-505.

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