Is there a role for the 24 hour growth hormone profile in the assessment of acromegaly?

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Background

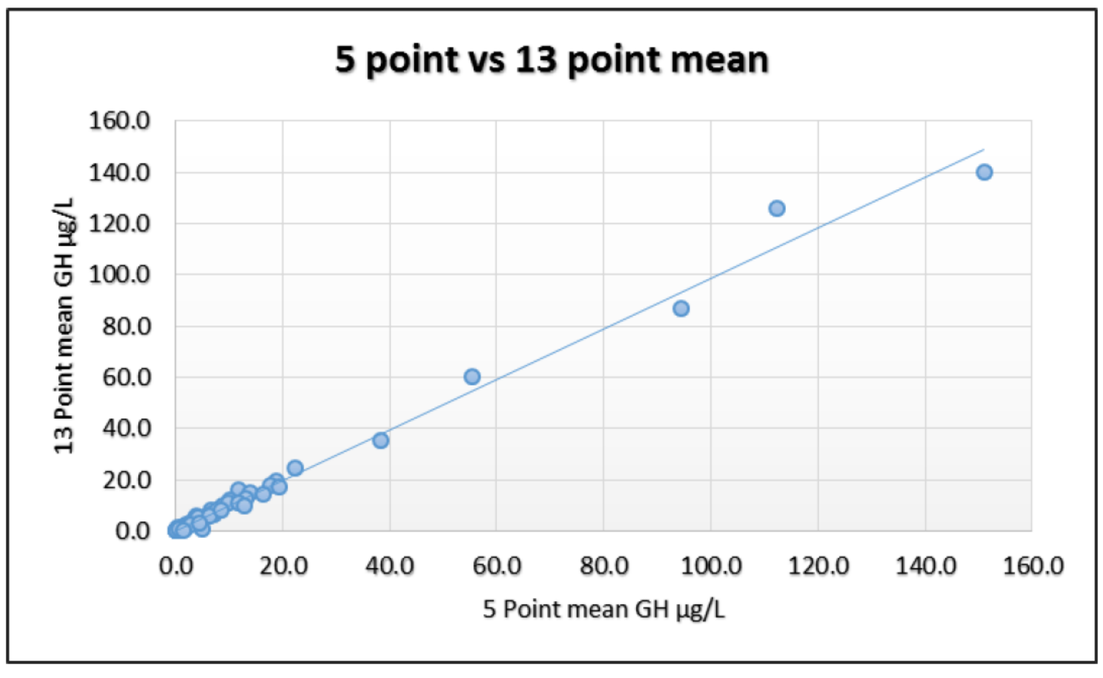
Recent Endocrine Society guidelines advocate insulin like growth factor (IGF-1), random growth hormone (GH) and nadir GH after oral glucose tolerance test (OGTT) for assessment in acromegaly. In our regional centre the 24h GH profile has also been used partly because of changing IGF-1 assay methodology but also because of concerns that IGF-1 may not adequately reflect partial therapeutic success.

Design

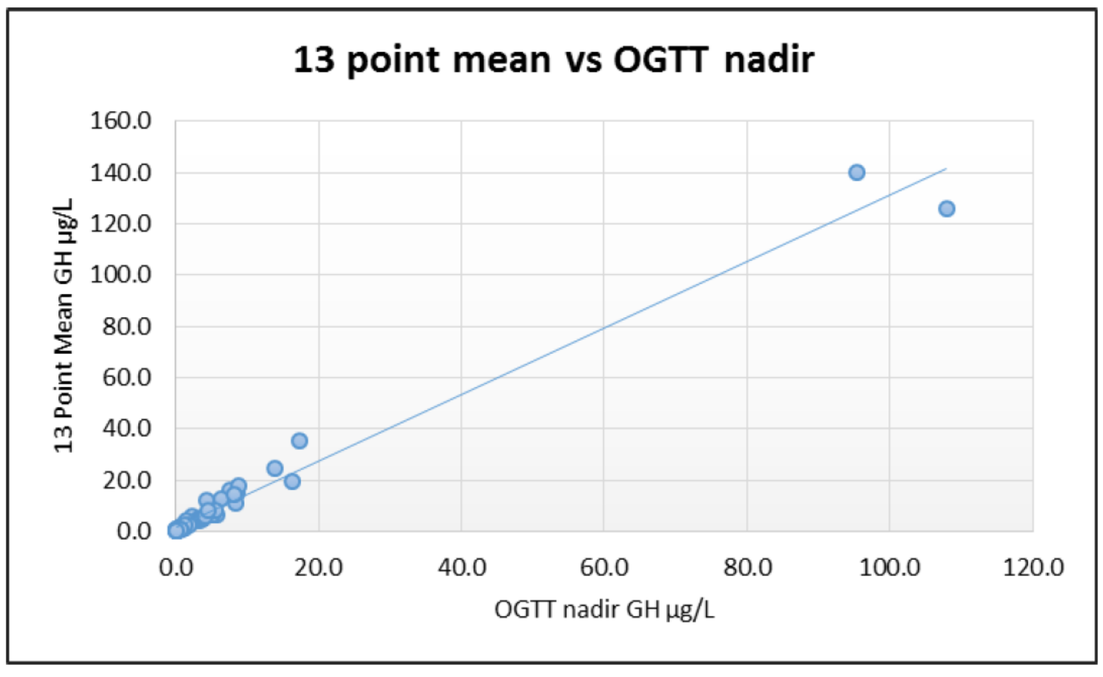
We evaluated 58 GH profiles in 35 patients from April 2008 to November 2012 when both GH and IGF-1 assays remained unchanged. Samples were drawn every 2h from 0800 to 0800 (13 time points) and matched with OGTT and IGF-1. In 20 patients paired profiles were available pre and 3 months postoperatively.

Results

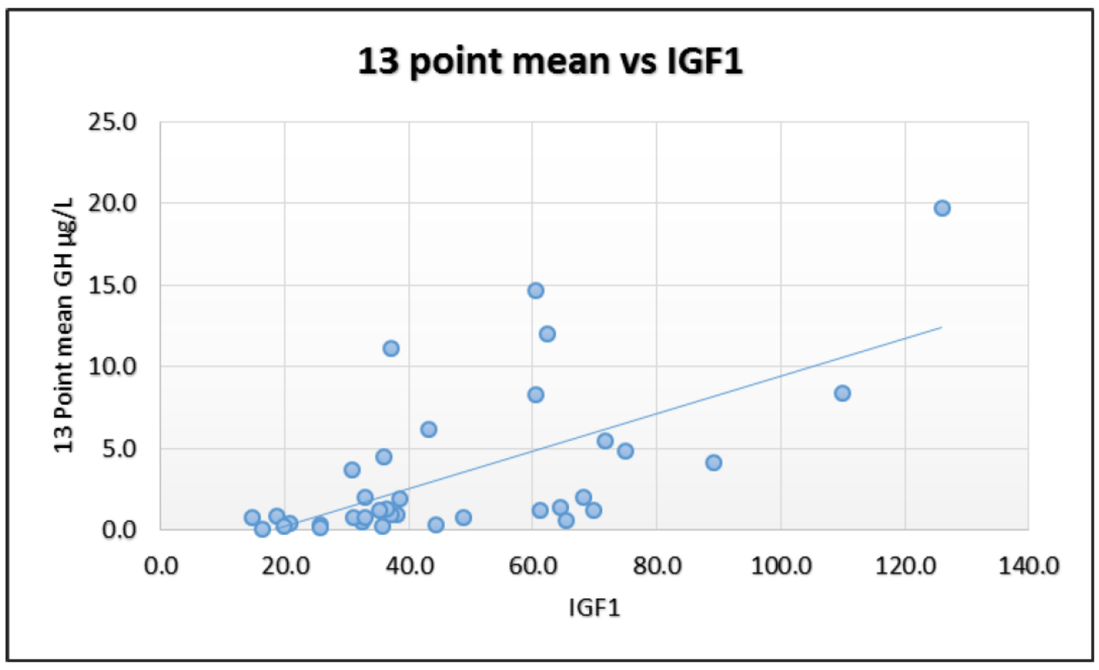
Correlation between the mean 13 and a 5 point (0800-1600) profile was strong (r =0.98, p<0.01).



Correlation between the mean 13 point profile and nadir GH on OGTT was also strong (r=0.96, p<0.01)



Correlations between the mean 13 point profile and IGF-1 were moderate (r=0.65, p<0.01).



Pre and post-operative discordance

Preoperatively there was full concordance between 0800 GH and IgF-1 and GH profiles.

Six patients had discordant results postoperatively (high 0800 GH ≥1µg/l; normal IGF-1). Three of these had a 13 point mean of <1µg/l.

In the 5 patients with high 0800 GH (≥ 20 µg/l) preoperatively reductions in GH postoperatively were considerable (88-99%) and in 1 patient mean GH was <1µg/l. In these 5 patients IGF-1 was not normalised being modestly reduced (34-64%) and in 1 patient, elevated by 33%.

Conclusions

GH profiling is not necessary in assessing the majority of patients with acromegaly if there is confidence in the local IGF-1 assay.

When undertaken, a 5 point profile is adequate.

In patients with high 0800 GH values profiling may more adequately reflect therapeutic effect.

Further work is needed to explore the role of the GH profile in stratifying patients with discordant IGF-1 and GH results postoperatively.

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