

fold-ULN;  $p < 0.001$ ), fasting insulin and C-peptide (both  $p = 0.004$ ), HOMA-insulin resistance index ( $p = 0.016$ ), and prehepatic beta-cell function ( $p = 0.002$ ), but not to BMI and gender. In multivariate analysis, fasting C-peptide and IGF-1 were both independent predictors of nadir GH levels in patients with newly diagnosed acromegaly ( $p < 0.001$ ). When testing for sex-specific predictors of nadir GH, we found a negative relationship between nadir GH and age in male patients, but not in females. After surgery, IGF-1 decreased from 805.5 (3.2 xULN, IQR 437.8) to 277.5 ng/ml (1.1 xULN, IQR 234.0) and nadir GH after glucose suppression decreased from 8.8 (IQR 16.2) to 0.5 ng/ml (IQR 1.9). The decrease in biomarkers of disease activity following surgery leads to changes in predictors of nadir GH: postoperatively nadir GH relates to IGF-1 ( $p < 0.001$ ), prehepatic beta-cell function ( $p = 0.02$ ), weight ( $p = 0.031$ ) and BMI ( $p = 0.044$ ), with beta-cell-function being the only independent predictor in multivariate analysis ( $p = 0.003$ ). When postoperative OGTTs performed in men and women were separately analyzed, nadir GH remained in a positive relationship to GH and IGF-1 in both sexes, but the relationship with beta-cell-function and other parameters of glucose metabolism remained significant only in male patients. In addition, postoperative nadir GH in male patients positively relates to LDL-cholesterol and triglycerides, and negatively to gonadal axis activity.

**Conclusion:** Here we describe that nadir GH concentrations in patients with acromegaly are mainly determined by parameters of disease activity and beta-cell function, but not by BMI and sex. A positive relationship between nadir GH and weight/BMI is only observed following improvement of disease activity after surgery, but appears mainly influenced by morphologic gender differences, as it disappears when male and female cohorts are analyzed separately.

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## Neuroendocrinology and Pituitary

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### *Nadir Growth Hormone Concentrations In Patients With Acromegaly Relate To Disease Activity, Glucose Metabolism, BMI And Sex*

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**Background:** In healthy subjects, nadir growth hormone (GH) concentrations following an oral glucose load are related to BMI, gender and estrogen use. To date, very few data exist on factors influencing nadir GH in patients with acromegaly. **Methods:** Glucose suppression tests (2h-75g) were performed in 166 patients with acromegaly not receiving any acromegaly-specific medical therapy: 132 OGTTs were performed at the initial disease diagnosis and 126 after at least one pituitary surgery. Glucose, insulin and C-peptide were measured every 30 minutes and the metabolic response was evaluated by minimal model analysis. Uni- and multivariate regression analysis was performed to test the relationship between nadir GH concentrations, patient characteristics and parameters of disease activity, lipid and glucose metabolism. **Results:** In patients with active acromegaly (46% males), nadir glucose concentrations positively correlated to fasting IGF-1 (expressed as