

## **Primary Surgical Therapy of Acromegaly - Results and Prognostic Parameters From the German Acromegaly Register**

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Surgery is used as a first-line therapy in many patients with acromegaly. We analyzed the German Acromegaly Register to investigate its efficacy and search for predictive factors. At the time of data lock, 1485 patients had been enrolled into the register.

Eight hundred forty two patients (56.7%) were primarily treated by surgery, with biochemical data without concomitant treatment available in 554 patients (m 46.0%, f 54.0%, median age (range): 46.0 (13-73) years). Random GH and IGF-1 levels prior to therapy were 15.8 (0.2-620.0) ng/ml and 731.0 (118-1700) ng/ml, respectively, with 93.7% of GH>2.5 ng/ml and 95.4% of IGF-1 elevated. Radiological evaluation revealed micro- and macroadenomas in 22.9% and 77.1%, respectively.

During postoperative evaluation after 9.8 months, GH levels <2.5 ng/ml were determined in 54.3% of subjects analyzed, and normalization of IGF-1 in 69.3%. A separate analysis for age decades demonstrated increasing success rates of surgery to control GH and normalize IGF-1 levels with age. In contrast, the results of surgery did not differ significantly with regard to the patient's sex. Further sub-analysis revealed declining success rates of surgery with higher preoperative GH levels, both with regard to control of GH and normalization of IGF-1. Preoperative GH levels above 80 ng/ml were associated with a relevant drop in surgical success rates, with control of GH in less than 15% of patients and normalization of IGF-1 in less than 40%. Furthermore, increasing tumor size scores from microadenoma to macroadenoma and macroadenoma with extrasellar extension were associated with decreasing success rates, both for postoperative GH control (70.9%, 52.9%, 46.1%) and IGF-1 normalization (89.8%, 68.1%, 56.0%).

In conclusion, primary surgery allowed for biochemical control in a relevant number of patients. Older patients, patients with microadenomas, and patients with pre-treatment GH levels below 80 ng/ml demonstrated the highest control rates by primary surgery.