Primary Medical Therapy of Acromegaly - Results and Prognostic Parameters From the German Acromegaly Register

Petersenn S[1], Reincke M[2], Buchfelder M[3], Gerbert B[4], Franz H[5], Quabbe HJ[6] for the Participants of the German Acromegaly Register

[1]Division of Endocrinology, Medical Center, University of Essen, [2]Klinikum Innenstadt, University of Munich, [3]Department of Neurosurgery, University of Erlangen-Nuremberg, [4]Division of Endocrinology, Medical Center, University of Dresden, [5]Lohmann & Birkner Health Care Consulting GmbH, Berlin, [6]Prof. emer., Free University Berlin

Medical therapy with somatostatin analogues (SA) has been discussed as an alternative to surgery in patients with acromegaly. We analyzed the German Acromegaly Register to establish the efficacy and predictive factors for primary SA therapy. So far, 1543 patients have been enrolled into the register.

Two hundred eleven patients (MT) received at least 1 mo of primary SA therapy, with biochemical data available for re-evaluation after a median of 5.1 (1-143) mo. Initial random GH and IGF-1 levels were 29.1+/-2.9 ng/ml and 779+/-20 ng/ml, respectively. Radiological evaluation revealed micro- and macroadenomas in 15.1% and 80.3%, respectively. A control group included 571 patients primarily treated by surgery and with biochemical data available (OP) (pre-therapy biochemical data and tumor size n.s. to MT).

In MT, GH<2.5 ng/ml was found in 35.1% of patients, and normal age-matched IGF-1 concentrations in 26.7%. In OP, GH<2.5 ng/ml were found in 54.6% of patients ($p<0.0001$ to MT), and normal IGF-1 in 65.2% ($p<0.0001$ to MT). Initial GH (GHpre) levels were significantly higher in MT not achieving control of GH by SA treatment (31.5+/-3.4 vs. 13.9+/-2.6 ng/ml, $p<0.0001$), as was the initial tumor size ($p<0.005$). GHpre<30ng/ml (67.8% of patients) allowed for significantly better control of GH (45.7% vs. 11.4%, $p<0.0001$) and normalization of IGF-1 (34.0% vs. 17.8%, $p<0.05$) in MT. Moreover, microadenomas demonstrated significantly better control of GH (64.0% vs. 30.4%, $p<0.005$) and higher normalization rates of IGF-1 (41.7% vs. 22.7%, n.s.) in MT than macroadenomas.

In 135 patients treated with surgery subsequently to primary medical therapy (SA+OP, pre-operative biochemical data and tumor size n.s. to OP), postoperative evaluation revealed GH<2.5 ng/ml in 66.7% of patients ($p<0.05$ to OP), and normal IGF-1 in 68.3% (n.s. to OP).

In conclusion, primary medical treatment with SA allowed for biochemical control in a relevant number of patients, with primary surgery demonstrating higher biochemical success rates. Efficacy of SA may have been limited by the preparations and doses used, and the duration of treatment in this retrospective evaluation. Patients with microadenomas or pre-treatment GH levels below 30 ng/ml may benefit most from primary medical treatment with SA. Medical therapy with SA prior to surgery may improve the biochemical outcome of surgery. Prospective studies are necessary to compare the various treatment options under well-defined, optimized conditions.