Comparison of various therapeutic options in the treatment of acromegaly - analysis of the German Acromegaly Register

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

[1]Division of Endocrinology, Medical Center, University of Essen, [2]Department of Neurosurgery, University of Erlangen, [3]Division of Endocrinology, Medical Center, University of Dresden, [4]Klinikum Innenstadt, University of Munich, [5]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 newly established German Acromegaly Register for the various treatment options used during the treatment of acromegaly. So far, 1543 patients have been entered into the database, with a mean age (+/-SEM) at diagnosis of 44.3+/-0.4 years. Initial random GH was 35.4+/-2.2 ng/ml, with 93.8% of GH>2.5 ng/ml and 95.3% of IGF-1 elevated. Radiological evaluation revealed micro- and macroadenomas in 21.2% and 78.8%, respectively.

Three hundred twenty one patients received at least 1 mo of SA as primary therapy (SA1), with biochemical data available for re-evaluation in 211 patients treated for 15.8+/-2.1 mo. GH<2.5 ng/ml were found in 35.1% of patients, and normal IGF-1 in 26.7%. Secondary treatment included surgery (70.7%), dopamine agonists (5.3%), growth hormone antagonist (0.6%), and radiotherapy (1.6%). In contrast, 923 patients were primarily treated by surgery (OP1), with biochemical data without concomitant treatment available for 571 patients (pre-therapy biochemical data n.s. to SA1). GH<2.5 ng/ml were found in 54.6% of patients ($p<0.0001$ to SA1), and normal IGF-1 in 65.2% ($p<0.0001$ to SA1). Secondary treatment included second surgery (14.6%), SA (12.6%), dopamine agonists (17.0%), and radiotherapy (8.2%).

In 135 patients treated with SA prior to surgery and biochemical data available (SA+OP, pre-operative biochemical data n.s. to OP1), postoperative evaluation revealed GH<2.5 ng/ml in 66.7% of patients ($p<0.05$ to OP1), and normal IGF-1 in 68.3% (n.s. to OP1). In 75 patients treated by primary surgery followed by SA (OP+SA), pre-operative GH levels were significantly higher than in SA1 ($p<0.0001$). However, GH levels after secondary SA were not significantly different to SA1, with %GH significantly lower than in SA1 (41.1+/-17.0 vs. 71.7+/-11.1, $p<0.005$). IGF-1 levels were similarly affected in both groups.

In conclusion, surgery had the highest biochemical success rates for the primary treatment of acromegaly. Primary medical treatment with SA presents an alternative in selected patients. Furthermore, pre-operative therapy with SA may improve the biochemical outcome. On the other hand, debulking surgery may improve the biochemical response rates of SA therapy. Prospective studies are necessary to compare these various treatment options in more detail.