Granulated somatotroph adenoma

There are two main subtypes of GH-producing pituitary adenoma: densely granulated (DG-type) and sparsely granulated (SG-type). Despite the difference in drug responsiveness between the two subtypes, their molecular mechanisms remain unknown. The aim of this study is to evaluate the differential expression of genes related to drug responsiveness between the two subtypes of somatotroph adenoma, and their relationship to the clinical characteristics. Eighty-two acromegaly patients (44 DG-type, 38 SG-type) were studied retrospectively. Clinical characteristics were compared between the two subtypes. Among them, 36 tumor tissue specimens (19 DG-type, 17 SG-type) were available for investigation of the expression of SSTR2, SSTR5 and D2R that are reported to be involved in drug responsiveness by realtime RT-PCR. Protein level was evaluated by immunohistochemical study. Patients with SG-type adenomas were younger in age and showed greater GH suppression by octreotide, but not by bromocriptin, and bigger in size and more invasiveness than DG-type adenomas. The mRNA expression of SSTR2 in DG-type adenomas were greater than those in SG-type adenomas and showed significantly positive correlation with GH suppression by octreotide. There was positive correlation between mRNA and protein levels of SSTR2. These data suggested that the differences of responsiveness to octreotide between DG- and SG-type adenomas are based on the expression levels of SSTR2 [1)].

1)
Kato M, Inoshita N, Sugiyama T, Tani Y, Shichiri M, Sano T, Yamada S, Hirata Y. Differential expression of genes related to drug responsiveness between sparsely and densely granulated somatotroph adenomas. Endocr J. 2012;59(3):221-8. Epub 2011 Dec 27. PubMed PMID: 22200580.