Growth hormone (GH) receptor antibodies with GH-like activity occur spontaneously in acromegaly

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Abstract

Previous studies in our laboratory have identified a portion of big-big GH as actually being anti-GH receptor immunoglobulins. We now report the isolation of two types of anti-GH receptor antibodies from the serum of active acromegalic patients. One of them (patient A) interferes with the human GH RIA, thus overestimating the real plasma GH values. The other type of immunoglobulin G (IgG; patient B) was detected in an acromegalic patient with almost normal immunoreactive GH level. The main aim of the present study was to explore whether these anti-GH receptor IgGs possess GH-like biological activity. The IgGs of both patients were isolated by chromatography on Sephadex G-100 and then on protein-A-Sepharose. In the bioassay, cultured Nb2 lymphoma cells were incubated with hGH standards and serial dilutions of the purified IgGs, and cell proliferation was used as a measure of biological activity. The IgGs of both patients showed GH-like bioactivities, which, when calculated as equivalents of human GH, correspond to approximately 260 and 120 micrograms/L, respectively. The results suggest that biologically active anti-GH receptor antibodies may contribute in the pathology of some cases of acromegaly.