



# Endocrinologic Outcomes Of Gamma Knife Radiosurgery For Acromegaly : From An Endocrine Clinic

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## OBJECTIVES

We evaluated retrospectively pituitary hormone status as well as the efficacy of GKRS for patients with acromegaly referred to our tertiary endocrinology clinic. Prognostic factors related to outcomes were also analyzed.

## METHODS

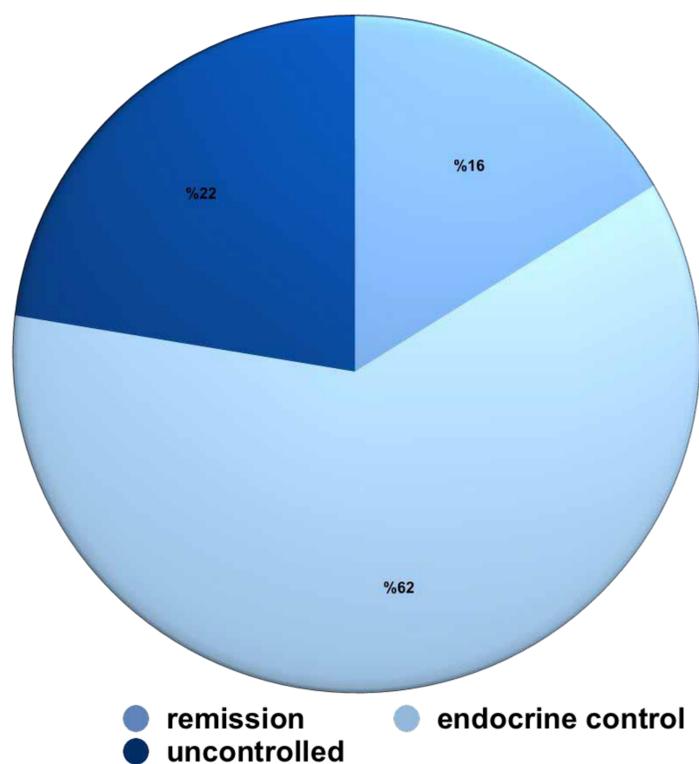
In this study we reviewed 125 patients with clinically active acromegaly underwent GKRS at different neurosurgery clinics between 1999-2015. The median follow up interval was 72 months (range 12-192). Anterior pituitary hormones during follow up was recorded. Endocrine remission for acromegaly was defined as growth hormone level  $< 1$  ng/ml and a normal insulin like growth factor 1 (IGF-1) level (age and sex adjusted) off growth hormone inhibiting drugs for at least 3 months. Endocrine control was defined as normal GH and IGF-1 levels under medication.

## RESULTS

One hundred and ten patients had undergone GKRS after transsphenoidal surgical adenoma resection, 15 patients had primary GKRS. Thirty seven patients (29,6 %) developed a new pituitary axis deficiency; 16,8 % (n=21) had hypothyroidism, 12 % (n= 15) had hypogonadism. Although 11 (8.8%) had panhypopituitarism prior to radiosurgery, only 1 patient (0,8 %) developed panhypopituitarism after GKRS. Other complication reported in one patient as visual loss.

Remission was observed in 20 (16%) patients at a median onset of 34 months after radiosurgery and endocrine control was achieved in 77 (61,6%) patients. Patients with lower IGF-1 and with tumors that were less invasive at the cavernous sinus before GKRS were associated better GH remission rates. Fourteen patients had repeat GKRS because of persistently elevated and clinically symptomatic GH, IGF-1 levels. The median follow up interval between gamma knife radiosurgeries was 48 months (range 12-120 months).

Remission rates



## CONCLUSIONS

GKRS which is most often applied in clinically symptomatic acromegaly persistent after initial microsurgery was most effective when the tumor was less invasive at the cavernous sinus and when patient had lower IGF-1 levels before GKRS. Previous transsphenoidal surgery for invasive macroadenomas are corresponding risk factors for pituitary hormone deficiency.

## References

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