

Introduction

Stereotactic radiosurgery particularly Gamma knife radiosurgery is an established treatment option for residual and recurrent pituitary adenoma. It helps in the preservation of surrounding normal neuronal,vascular and hormone producing structures and cause less neurological deficits. The aim of the research is to evaluate the efficacy and define the role of GKRS for non-functioning and hormonal-active pituitary adenoma.

Methods

A retrospective analysis of 111 patients of histologically proven pituitary adenoma who underwent GKRS treatment at LSU Health Sciences Center, Shreveport, Louisiana,USA over seventeen year period is presented.The clinical and radiological data was collected from the database. The tumors were categorised into NFA and HAA based on the endocrinology profile, analyzed and summarized.

Results

The median age of the patients was 58 years.The study comprised 87 patients with NFA and 24 patients with HAA tumors.38 patients[34.2%] had hypopituitarism symptoms and 8 patients [7%] had pan hypopituitarism symptoms.The pre-GKRS mean tumor volume was 3.8 cm3.The suprasellar and cavernous extension of the tumor was noted in 28 patients [25.2%] and 34 [30.6%] patients.We observed >70% reduction in the size of tumors in the shrinkage cohort after GKRS and the median time for the shrinkage was 48.4 months.However increase in tumor size was noted in the progression cohort [Pre-GKRS: 3.8cm3 vs Post-GKRS: 6.5cm3].70 patients [63.1%] had neurological improvement and 26 patients [23.4%] had endocrinological worsening after GKRS.

Conclusions

GKRS affords high rate of tumor control and offers low risk of collateral neurological or endocrine axis injury. Our study shows that control of tumor growth was achieved in 90% patients,shrinkage of tumor in 54% and arrest of progression in 36% cases after GKRS treatment.The biochemical remission rate in GH secreting adenoma was 57%, ACTH adenoma was 67% and prolactinoma was

Learning Objectives

The study demonstrates the efficacy and define the role of GKRS for non-functioning and hormonal-active pituitary adenoma.

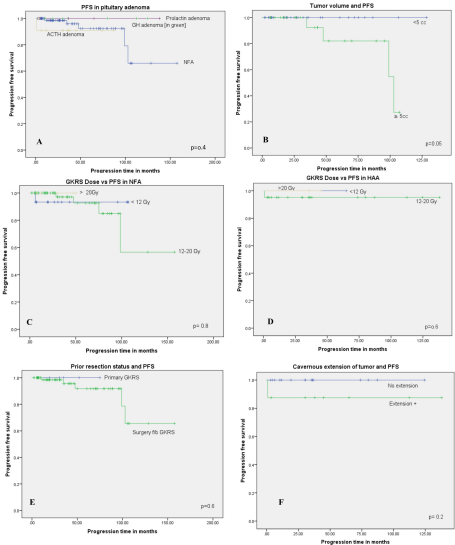
References

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Figure file



Legend to figure 1: Kaplan- Meier [KM] plot showing the correlation between various factors and progression free survival

A-PFS and type of pituitary adenoma

B-PFS and tumor volume

C-PFS and GKRS dose in Non- functioning adenoma [NFA]

D-PFS and GKRS dose in Hormonal-active adenoma [HAA]

E-PFS and prior resection status

F-PFS and cavernous extension of tumor