Endoscopic endonasal approach to the GH secreting pituitary adenomas: endocrinological outcome in 68 patients

Mehdi Zeinalizadeh,[1,2] Mohammad Taghvaei,[1,2] Seyed Mousa Sadrehosseini,[3]

1- Department of Neurological Surgery, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.

2- Pituitary Clinic, Neuroscience institute, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran

3- Department of Otolaryngology, Head, and Neck Surgery, Imam Khomeini Hospital complex, Tehran University of Medical

Abstract

Purpose: Endoscopic endonasal approach has recently become the initial option for resection of all pituitary adenomas. We assessed biochemical outcome of expanded endoscopic endonasal surgery in growth hormone (GH) secreting adenomas including remission rate, predictors of remission and associated complications.

Methods: Sixty eight consecutive patients with GH secreting adenoma who underwent expanded endoscopic endonasal surgery have been analyzed prospectively. Tumors were classified according to the size, Knosp score, and Hardy-Wilson classifications. Biochemical remission was defined as normal serum IGF-I level and either a suppressed GH serum level less than 0.4 ng/ml during an oral glucose tolerance test or a random GH level less than 1.0 ng/ml at least 3 months after surgery.

Results: Total biochemical remission rate was 64.7% and Gross total resection was achieved in 61 (89.7%) of 68 patients. Remission was achieved in 12 of 16 microadenomas (75%) and 32 of 52

macroadenomas (61.5%). Based on univariate logistic regression analysis preoperative variables predictive of remission were age (*P* = 0.004), Knosp score (*P* = 0.023) and preoperative GH levels (*P*= 0.042). Tumor size, gender, history of prior surgery, preoperative IGF-1 levels, suprasellar extension, and sphenoid sinus invasion were not associated with remission rate.

Three patients (4.4%) experienced postoperative pan hypopituitarism, and permanent diabetes insipidus (DI) was seen in 4 (5.9%) patients. Two patients (2.9%) suffered from CSF leaks, which were treated by lumbar puncture in one and early surgical repair in the other case. The median follow-up period was 25.9 months (range 3–49).

Conclusions: Endoscopic endonasal adenoma resection leads to a high rate of endocrinological remission in GH secreting adenomas with low complication rate. Patients with older age, higher preoperative GH levels, and Knosp scores are less likely to achieve remission.

Keywords: Acromegaly; Endoscopic endonasal approach; Growth hormone; Pituitary adenoma; .