

Introduction

Determining whether or not a patient has a prolactin-secreting pituitary adenoma or a nonfunctional pituitary adenoma exhibiting stalk effect can be very difficult. The distinction is critical, however, as often a prolactinoma can be treated (at least initially) with medical management using dopamine agonists such as Bromocriptine or Cabergoline, whereas a symptomatic non-functional pituitary adenoma requires surgical intervention. The objective of this study was to develop an algorithm to better predict whether patients presenting with elevated prolactin levels have a prolactin secreting pituitary adenoma or a nonfunctional pituitary adenoma exhibiting stalk effect.

Methods

The surgical database at MD Anderson Cancer Center was retrospectively reviewed between 2002-2013 to find all patients with a histologic diagnosis of either prolactin secreting pituitary adenoma or non-functional pituitary adenoma. Patients were excluded if they were taking a medication or had a pre-existing condition that led to an increased prolactin level.

Results

On univariate analysis, there were statistically significant differences ($p < 0.05$) in the two groups of patients with respect to preoperative prolactin level, presence of galactorrhea, degree of stalk compression and deviation, tumor size in three dimensions, and tumor volume. Multivariate logistic regression demonstrated that preoperative prolactin level (Odds Ratio [OR], 1.01; $P < 0.05$) and presence of galactorrhea (OR, 6.27; $P < 0.05$) were independent predictors of prolactinomas, and tumor volume was an independent predictor of nonfunctional pituitary adenomas (OR, 0.6; $P < 0.01$). Pituitary stalk deviation and compression were not shown to have an independent predictive value.

Conclusions

This study shows that preoperative prolactin level, galactorrhea, and tumor volume are independent predictive variables that can be used to differentiate prolactinomas and nonfunctional pituitary adenomas. We hope to further validate this model with testing on patients presenting with elevated prolactin levels and a pituitary lesion on MRI.

Learning Objectives

By the conclusion of this session, participants should be able to accurately differentiate between a prolactinoma and a nonfunctional pituitary adenoma, and recognize the variables that help to differentiate one pathology from another.

References

1)Albuquerque FC, Hinton DR, Weiss MH. Excessively high prolactin level in a patient with a nonprolactin-secreting adenoma. Case report. J Neurosurg. 89(6):1043-6, 1998.

2) Smith MV, Laws ER Jr. Magnetic resonance imaging measurements of pituitary stalk compression and deviation in patients with nonprolactin-secreting intrasellar and parasellar tumors: lack of correlation with serum prolactin levels. Neurosurgery. 34(5):834-9, 1994.

3) Randall RV, Scheithauer BW, Laws ER Jr, Abboud CF. Pseudoprolactinomas. Trans Am Clin Climatol Assoc. 94:114-21, 1983.

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