Pituitary Apoplexy and the Current Understanding of Its Management: A Meta-Analysis of 908 Patients

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Abstract

Background: Pituitary apoplexy (PA) is characterized by acute hemorrhage or infarction of the pituitary gland. Management can be either conservative or surgical. Evidence favoring either is still limited to observational studies. This meta-analysis evaluates the effectiveness of both approaches on patient outcomes.

Methods: A systematic search was performed until February 2024. We included cohort studies of patients with PA. Patients were divided into 2 groups: a conservative management group and a surgery group, including early and late surgery. Outcomes of interest were assessed categorically using risk ratio (RR) and Mantel-Haenszel's random effects model.

Results: Of the 273 published articles, 15 cohort studies comprising 908 patients were included. There was no statistically significant difference between groups in recovery of ophthalmoplegia (RR=1.09, confidence interval [CI]=1.00-1.18, P=0.05), visual field (RR=1.09, CI=0.91-1.3, P=0.35), visual acuity (RR=1.05, CI=0.87-1.26, P=0.61), hypopituitarism (RR=1.37, CI=0.81-2.32, P=0.25), and tumor recurrence (RR=0.74, CI=0.34-1.61, P=0.45). This was similar for conservative management versus early surgery in recovery of visual field (RR=0.92, CI=0.62-1.37, P=0.68), visual acuity (RR=1.01, CI=0.81-1.26, P=0.93), and ophthalmoplegia (RR=0.92, CI=0.53-1.61, P=0.77).

Conclusions: Both interventions provide comparable outcomes. These findings, though, are drawn from observational studies, and more severe cases typically undergo surgery. Larger studies are necessary to provide conclusive evidence.

Keywords: Conservative management; Hypopituitarism; Pituitary apoplexy; Surgical management; Visual outcomes.