

PITUITARY TUMORS

Predicting glucose metabolism after surgery for acromegaly

A preoperative insulinogenic index >0.5 could predict restoration of normal glucose metabolism in Japanese patients after surgical cure of acromegaly, report researchers from Tokyo.

Acromegaly is often associated with impaired glucose metabolism. Normalization of this metabolic defect may occur after acromegaly is cured; however, predicting which patients will respond has proven difficult. “In clinical practice, we were experiencing that impaired glucose metabolism was gone in some patients but not in others, even after cure of acromegaly,” senior author Yasuhiro Takeuchi explains. “We wondered how we could tell our patients with acromegaly coincident with diabetes mellitus whether or not they would be free from both diseases after successful pituitary surgery.” The investigators, therefore, decided to investigate which preoperative clinical parameters might predict improvement of impaired glucose metabolism after surgery.

The research team performed a retrospective analysis of 92 consecutive, nonobese adults with acromegaly who underwent successful pituitary surgery. Individuals who had received medical therapy for acromegaly or insulin therapy for diabetes mellitus were excluded. Insulin resistance and pancreatic β -cell

function were assessed preoperatively and within 1 month after surgical intervention.

In all, 36 patients displayed impaired glucose tolerance and 17 had diabetes mellitus before surgery; the remainder exhibited normal glucose tolerance in the preoperative period. After surgery, normal glucose tolerance was restored in 27 (51%) of the patients with impaired glucose tolerance or diabetes mellitus.

The most notable finding was that measures of sufficient β -cell function—in particular, an insulinogenic index >0.5 —were the best predictors of restoration of glucose metabolism after surgical cure of acromegaly. Of note, although insulin resistance was generally improved after surgical cure in all three groups, impaired glucose metabolism was not restored in cases where β -cell function had already deteriorated before surgery. Furthermore, serum levels of growth hormone and insulin-like growth factor 1 did not correlate with measures of insulin resistance in this particular group of patients.

Long-term studies are still required to verify the results, and the cut-off value for insulinogenic index is likely to be influenced by BMI and ethnicity. Nonetheless, as Takeuchi points out, “now we can tell before surgery if impaired glucose metabolism in a patient



with acromegaly will be restored after successful pituitary surgery, at least in Japanese individuals.”

Vicky Heath

Original article Kinoshita, Y. *et al.* Impaired glucose metabolism in Japanese patients with acromegaly is restored after successful pituitary surgery if pancreatic β -cell function is preserved. *Eur. J. Endocrinol.* doi:10.1530/EJE-10-1096