

Frete C et al. Non-invasive Diagnostic Strategy in ACTH-dependent Cushing's Syndrome. J Clin Endocrinol Metab. 2020;105(10): 3273-84. dgaa409. doi: 10.1210/clinem/dgaa409.

CONTEXT: Inferior petrosal sinus sampling (IPSS) is used to diagnose Cushing's disease (CD) when dexamethasone-suppression and CRH tests, and pituitary magnetic resonance imaging (MRI), are negative or give discordant results. However, IPSS is an invasive procedure and its availability is limited.

OBJECTIVE: To test a noninvasive diagnostic strategy associated with 100% positive predictive value (PPV) for CD.

DESIGN: Retrospective study.

SETTING: Two university hospitals.

PATIENTS: A total of 167 patients with CD and 27 patients with ectopic ACTH-syndrome investigated between 2001 and 2016.

MAIN OUTCOME MEASURE(S): Performance of a strategy involving the CRH and desmopressin tests with pituitary MRI followed by thin-slice whole-body computed tomography (CT) scan in patients with inconclusive results.

RESULTS: Using thresholds of a cortisol increase > 17% with an ACTH increase > 37% during the CRH test and a cortisol increase > 18% with an ACTH increase > 33% during the desmopressin test, the combination of both tests gave 73% sensitivity and 98% PPV of CD. The sensitivity and PPV for pituitary MRI were 71% and 99%, respectively. CT scan identified 67% EAS at presentation with no false-positives. The PPV for CD was 100% in patients with positive responses to both tests, with negative pituitary MRI and CT scan. The Negative Predictive Value was 100% in patients with negative responses to both tests, with negative pituitary MRI and positive CT scan. Using this strategy, IPPS could have been avoided in 47% of patients in whom it is currently recommended.

CONCLUSIONS: In conjunction with expert radiologic interpretation, the non-invasive algorithm studied significantly reduces the need for IPSS in the investigation of ACTH-dependent Cushing's syndrome.