

**Bologna K et al. Effect of Arginine on the Hypothalamic-Pituitary-Adrenal Axis in Individuals With and Without Vasopressin Deficiency. J Clin Endocrinol Metab. 2020;105(7): e2327-36. doi: 10.1210/clinem/dgaa157.**

**CONTEXT:** Arginine stimulates pituitary hormones, like growth hormone and vasopressin, but its effect on the hypothalamic-pituitary-adrenal (HPA) axis is unknown. Arginine may also stimulate the HPA axis, possibly through a mechanism involving vasopressin.

**OBJECTIVE:** To investigate the effect of arginine on adrenocorticotrophic hormone (ACTH) and cortisol in subjects with and without vasopressin deficiency.

**DESIGN:** Prospective study, University Hospital Basel.

**PARTICIPANTS:** 38 patients with central diabetes insipidus, 58 patients with primary polydipsia, and 50 healthy controls.

**INTERVENTION:** Arginine infusion with measurement of ACTH, cortisol and copeptin at baseline and 30, 45, 60, 90, and 120 minutes.

**RESULTS:** We found different response patterns to arginine: in patients with diabetes insipidus (and low stimulated copeptin levels) median (interquartile range [IQR]) ACTH and cortisol increased from 22.9 (16.8, 38.7) to 36.6 (26.2, 52.1) ng/L and from 385 (266, 463) to 467 (349, 533) nmol/L, respectively. In contrast, median (IQR) ACTH and cortisol levels decreased in patients with primary polydipsia (despite high stimulated copeptin levels): ACTH from 17.3 (12.3, 23) to 14.8 (10.9, 19.8) ng/L and cortisol from 343 (262, 429) to 272 (220.8, 360.3) nmol/L; likewise, in healthy controls: ACTH from 26.5 (17.6, 35.7) to 14.8 (12.1, 22.7) ng/L and cortisol from 471 (393.3, 581.8) to 301.5 (206.5, 377.8) nmol/L.

**CONCLUSION:** Diabetes insipidus is associated with increased responsiveness of ACTH/cortisol to arginine. In contrast, arginine does not stimulate the HPA axis in healthy controls or in primary polydipsia.