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Effect of fluticasone propionate nasal spray on the hypothalamic-pituitary-adrenal axis

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To the Editor:

We read with interest the recent article by Vargas et al (J Allergy Clin Immunol 1998;102:191-197) showing an apparent lack of effect of 4 times the recommended daily dose of fluticasone propionate aqueous nasal spray (800 µg/day) on hypothalamic-pituitary-adrenal (HPA) axis function. This conclusion was based on the primary end point of area under the curve for a 6-hour infusion of cosyntropin 250 µg. This would appear to be a somewhat surprising result given that topically administered corticosteroids are absorbed directly into the systemic circulation from the nose, where there is no first-pass inactivation.¹ In considering the results of their study, it is important to point out the insensitivity of the 250 µg cosyntropin test, which represents a supraphysiologic dose, whereas much lower doses of cosyntropin (0.5 to 1.0 µg) are as effective in producing a stimulated cortisol response and correlate well with an insulin stress test.²⁻⁵ The low-dose cosyntropin test is more sensitive in detecting more subtle insufficiency of the HPA axis in patients receiving exogenous corticosteroids.^{6,7}

The authors appear to have ignored other studies that have shown significant suppression

of markers of HPA-axis activity, biochemical markers or bone formation, peripheral blood eosinophil count, and lymphocyte glucocorticoid receptor mRNA expression; all of these occur in association with the usual recommended dose of 200 µg/day intranasal fluticasone. ^{8 10}

They also calculated the number of patients with an abnormal peak response to cosyntropin, which was defined as a value 2 SD below the mean of the placebo group (>22.1 µg/dL or >614 nmol/L), whereas a more conventional definition of a normal cosyntropin response is a peak cortisol concentration of at least 18 µg/dL (>500 nmol/L). ^{11 12} By using these correct criteria for an abnormal peak response to cosyntropin, it is likely that the proportion of abnormal responses in patients receiving prednisone would have been considerably less than was reported, again pointing to the insensitivity of this test. This emphasizes the need to properly appraise the sensitivity of tests used to measure impaired HPA-axis function along with the appropriate analysis of the data.

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[ABSTRACT](#)

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