

LETTERS TO THE EDITOR**TO THE EDITOR****A Possible Link between Fluticasone Propionate and Tics in Pediatric Asthmatics**

We report a six year-old asthmatic male who developed transient motor tics, possibly secondary to his use of fluticasone propionate (fluticasone). At this particular clinic visit, the mother reported that the patient had begun using fluticasone 50 mcg two puffs b.i.d. for the last four months. The motor tics began to appear about two months after he began the fluticasone, and continued throughout that time period. His fluticasone was replaced with ciclesonide (100 mcg one puff daily), and within eight weeks, his motor tics resolved.

Furthermore, we report a ten year-old male with asthma and Tourette's syndrome (TS) whose tics worsened five days after the introduction of fluticasone 125 mcg two puffs b.i.d. When fluticasone was discontinued, his tics returned to baseline. Due to asthma symptoms, he was prescribed fluticasone again, but at a dose of 50 mcg two puffs b.i.d. Once again a similar exacerbation of his tics was noted, which again resolved after discontinuation of fluticasone.

The purpose of this letter is to speculate a link between fluticasone and tics in the pediatric asthmatic population based on these cases and a literature review.

DISCUSSION

Corbett et al studied salivary cortisol levels in children 7-13 years with TS compared to healthy controls and discovered that the TS group had significantly lower evening cortisol levels compared to the control group¹. Furthermore, evening cortisol values were negatively correlated with overall tic severity¹. This is relevant to our cases, as Weiner et al revealed a significant decrease in nocturnal cortisol production after use of fluticasone in patients with mild-to-moderate asthma who had not used inhaled corticosteroids (ICS) for at least three months². Furthermore, meta-analysis illustrated that fluticasone caused greater dose-related adrenal suppression, compared to other ICS, such as beclomethasone, triamcinolone, and budesonide³.

In contrast, Heller et al presented four cases of pediatric patients with asthma and adrenal suppression secondary to ICS⁴. In each case, after switching to ciclesonide, HPA axis recovery was confirmed via an ACTH stimulation test⁴. This may explain the resolution of our first patient's tics after replacing fluticasone with ciclesonide.

Genetic factors can partially account for the extent of adrenal suppression that occurs. Specifically, Tsartsali et al demonstrated that homozygotes for the variant rs242941 in the corticotrophin-releasing hormone receptor 1 (CRHR1) gene manifested a delayed cortisol response after use of ICS, while homozygotes for the variant rs1876828 in the CRHR1 gene were found to have lower baseline cortisol levels prior to treatment with ICS and delayed cortisol response after treatment⁵.

In conclusion, the major limitation is that we did not measure either patient's serum cortisol levels at the time that these changes were noticed. This is because the proposed link between

fluticasone and tics was only discovered retrospectively after reviewing both patients' charts. Therefore, a larger series with a rigorous challenge-rechallenge or similar blinded approach is needed to confirm this association.

We recommend that fluticasone be considered as a possible trigger of transient motor tic development in asthmatic children for which there is no other identifiable cause.

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