

Over-the-counter Use of Glucocorticoids causing Severe Stunting in Siblings

Cushing syndrome is a known cause of short stature and usually presents with a characteristic body habitus. Rarely, the florid signs of Cushing syndrome may be absent leading to a missed or delayed diagnosis [1].

Two siblings, a 10-year old boy and 7-year old girl were referred to our pediatric endocrinology clinic for evaluation of short stature. There was a history of joint pains since early childhood and growth failure since the last many years. On examination, they had severe stunting (height-for-age Z-score -4.9 and -3.8, respectively), anemia, and delayed bone age and osteopenia on radiographs. The younger sibling had right eye posterior sub-capsular cataract and rickets as well. The etiology of growth failure was not evident from the initial diagnostic evaluation with evidence of multi-systemic involvement including pituitary dysfunction (including low serum T4 and TSH levels and suppressed hypothalamus-pituitary-adrenal (HPA) axis with low morning cortisol levels). However, detailed history revealed surreptitious over-the-counter intake of glucocorticoids in the form of oral prednisolone in a variable dose of 0.5-1 mg/kg off and on, since early childhood. The children had become dependent on glucocorticoids and had a characteristic withdrawal syndrome that accounted for their severe arthralgias and myalgias. Catch-up growth occurred once glucocorticoids were stopped and supplementation with physiological doses of hydrocortisone were given till recovery of the HPA axis.

Long-term use of glucocorticoids is known to suppress growth by direct toxic effect on the cartilage growth plate by decreasing vascular proliferation and inhibiting hypertrophy of chondrocytes [2]. Hypercortisolemia due to Cushing syndrome or chronic glucocorticoids intake can be associated with reversible pituitary dysfunction, including low T4 and TSH levels [3], GH deficiency, or panhypopituitarism [4].

The underlying condition for which the siblings began consuming steroids is still unclear. Detailed evaluation including inflammatory/autoimmune markers or effusion of the joints on ultrasound/aspiration did not reveal evidence of inflammation. We postulate that they suffered from a characteristic steroid withdrawal syndrome manifesting as severe myalgias and arthralgias [5], making it difficult to distinguish from the underlying condition for which the steroids were started. The dependence on glucocorticoids led to a vicious cycle of its over-the counter intake, withdrawal symptoms on discontinuation, and its further consumption.

These cases highlight the practice of over-the-counter sale and abuse of glucocorticoids preparations in countries with poor drug regulation system. Additionally, parents may self-medicate their children with corticosteroids to increase appetite and weight without knowing the deleterious side effects [6].

Clinicians need to keep a high index of suspicion for chronic glucocorticoid toxicity in the differential diagnosis of short stature and other unexplained clinical findings.

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