the treatment and placebo groups required the addition of fluticasone equally, which suggests that perhaps those in the treatment group had worse disease. Prestudy lung function was not tested, and individual atopic status was not assessed to determine if these 2 groups were truly equivalent. Studies are needed to determine if atopy is a confounding factor and whether controlling for allergen exposure in addition to ICS has an effect on asthma outcomes. This study and other similar studies suggest that ICS can improve asthma symptoms, but early use does not modify the disease.

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High-Dose Inhaled Fluticasone Does Not Replace Oral Prednisolone in Children With Mild to Moderate Acute Asthma


PURPOSE OF THE STUDY. To evaluate whether there is a significant difference in the degree of improvement in forced expiratory volume at 1 second (FEV₁) in children with mild-to-moderate acute asthma treated with either inhaled fluticasone or oral prednisolone.

STUDY POPULATION. Sixty-nine children aged 5 to 17 years with a previous history of wheezing who presented to a tertiary care pediatric emergency department (ED) with acute asthma and an FEV₁ between 50% and 79% predicted.

METHODS. This randomized, double-blind, double-dummy trial randomly assigned patients to receive either 2 mg of fluticasone via metered-dose inhaler (MDI) in the ED along with 500 µg of fluticasone via Diskus twice daily for 5 days (n = 35) or 2 mg/kg oral prednisolone in the ED along with 1 mg/kg prednisolone once daily for 5 days (n = 34). All children received scheduled, nebulized albuterol and ipratropium bromide in the ED and were given scheduled salmeterol and rescue albuterol on ED discharge. FEV₁ was measured at baseline, 4 hours, and 48 hours.

RESULTS. At 4 hours, the patients in the prednisolone group had a significantly greater increase in FEV₁ (29.8% ± 15.5%) compared with those in the fluticasone group (19.1% ± 12.7%; P = .001). By 48 hours, the difference in FEV₁ between the groups was no longer statistically significant. In addition, the number of unscheduled asthma visits by 48 hours after ED discharge was significantly greater in the fluticasone group (4 of 32) than the prednisolone group (0 of 34).

CONCLUSIONS. Children with mild-to-moderate acute asthma improve faster on oral prednisolone than inhaled fluticasone.

REVIEWER COMMENTS. Systemic corticosteroids are both historically and currently the mainstay treatment for acute asthma, given their ability to reduce hospitalizations, decrease relapses, regain asthma control, and improve lung function. However, the risks associated with the frequent use of oral corticosteroids have led researchers to search for an alternative treatment for acute asthma. Although previous studies have shown oral corticosteroids to be superior to inhaled steroids in severe acute asthma, the question remains as to whether inhaled corticosteroids could be used in mild and moderate asthma exacerbations. This study addressed this question and determined that oral corticosteroids are superior to inhaled steroids, even for mild exacerbations of asthma, in regard to relapse rate and time to FEV₁ improvement. These findings support the current use of oral steroids for treatment of mild-to-moderate acute asthma.

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Assessment of Adrenal Suppression in Children With Asthma Treated With Inhaled Corticosteroids: Use of Dehydroepiandrosterone Sulfate as a Screening Test


PURPOSE OF THE STUDY. To evaluate dehydroepiandrosterone sulfate (DHEA-S), a corticotropin-dependent adrenal androgen precursor, as a possible marker for adrenal function and hypothalamic-pituitary-adrenal axis suppression in children treated with inhaled corticosteroids (ICSs) compared with low-dose (0.5 µg/m² up to 1.0 µg) and standard-dose (250 µg) cosyntropin-stimulation testing.

STUDY POPULATION. Twenty-two patients with moderate-to-severe persistent asthma receiving a medium-to-high dose of ICSs for at least 6 months were enrolled (definition of median-to-high dose of ICS: budesonide >400 µg/day or fluticasone >176 µg/day for children <6 years old or >200 µg/day for those ≥6 years). Patients had received no more than 2 courses of systemic corticosteroid exposure of <10 days’ duration in the previous 6 months and no systemic corticosteroid in the 1 month before enrollment. The average age of the patients was 8.6 years (range: 2–12 years).

METHODS. After a 12-hour fast, morning cortisol, corticotropin, DHEA-S, and fasting blood sugar levels were measured. Cortisol was measured after the stimulation tests. A cortisol level of ≤18 µg/dL was considered abnormal (adrenal suppression).

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