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## Effectiveness and safety of inhaled corticosteroids

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### *To the Editor:*

The first sentence of the abstract in the recent article by Volovitz et al (J Allergy Clin Immunol 1998;102:605-9) perpetuates a major misconception concerning inhaled corticosteroids. The abstract states "Inhaled corticosteroids have greater anti-inflammatory potency and fewer systemic effects than intravenous, intramuscular, or oral corticosteroids." Because many currently used inhaled corticosteroids are available for administration by other routes, there is a priori evidence that this statement is false. I assume the authors meant that many steroids increase their efficacy in the treatment of asthma when inhaled as opposed to other routes of administration. This efficacy is based on potency, which is independent of the route of administration, lack of systemic bioavailability, and direct contact with airway cells.<sup>1</sup> Dexamethasone is an example of a corticosteroid that when inhaled still exhibits significant systemic effects and therefore similar adverse effects to preparations administered by other routes.<sup>2</sup> In theory it is possible that a steroid not administered directly to the lung might be more efficacious than an inhaled corticosteroid. This would depend on a variety of factors, such as vascular supply of poorly ventilated lung tissue, potency, elimination and glucocorticoid receptor residency half-life, and specificity of binding to certain airway cells.<sup>3</sup> Each corticosteroid needs to be evaluated before its ideal route of

administration is established. Weinberger<sup>4</sup> reported that in children with asthma mean doses of oral prednisone of 30 mg given on alternate days and inhaled beclomethasone dipropionate of 550 µg per day were equally effective and had similar effects on the pituitary-hypothalamic axis and growth. Compliance was better and cost cheaper in the oral prednisone group. Kelloway et al<sup>5</sup> compared compliance rates between oral theophylline and inhaled anti-inflammatory medications. Their findings indicated that additional methods needed to be pursued to increase compliance in patients treated with inhaled corticosteroids. Milgrom et al<sup>6</sup> found compliance with inhaled corticosteroids in children to be a median of 58.4%, and they also found that more than 90% exaggerated their medication use. Compliance was 13.7% for children who experienced an exacerbation. These studies illustrate some of the problems with inhaled corticosteroids. The belief that the inhaled route is preferable because of greater anti-inflammatory and anti-asthma potency could prevent optimal treatment and limit future drug development.

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## References

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ABSTRACT

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