

Intranasal corticosteroid treatment appears beneficial for children with obstructive sleep apnea

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Using a fluticasone furoate nasal spray for treatment of obstructive sleep apnea in children appears to reduce production of certain inflammatory cell proteins that may play a role in development of obstructive sleep apnea, according to a report in the June issue of *Archives of Otolaryngology – Head & Neck Surgery*.

"Obstructive [sleep](#) apnea syndrome is characterized by prolonged partial upper airway obstruction and/or intermittent complete obstruction with disruption of normal ventilation during sleep and normal sleep patterns," the authors write as background information in the study. It is estimated that obstructive sleep apnea syndrome (OSAS) occurs in 2 percent to 3 percent of children and can have a negative effect on overall quality of life. According to the authors, previous research has suggested a role for inflammation in OSAS, including increased release of certain cytokines and the presence of inflammatory cytokines.

To determine the effect of intranasal corticosteroid therapy on inflammatory cytokines (non-antibody proteins secreted by cells that act as mediators between cells) in adenoid tissues in children with OSAS, Rania Esteitie, M.D., and colleagues from The University of Chicago Medical Center and Pritzker School of Medicine, conducted a randomized, prospective exploratory study of 24 children ages 2 to 12 years who were undergoing adenotonsillectomy (surgical removal of the tonsils and adenoids) for OSAS that had been documented by

polysomnography.

Children were randomized into one of two groups: treatment (n=11) or no treatment (n=13). The 11 children in the treatment group received 55µg (microgram or mcg; equal to one millionth of a gram) of fluticasone furoate [nasal spray](#) (an intranasal corticosteroid) once daily for two weeks while the 13 children in the no-treatment group received no intranasal treatment. All children included in the analysis underwent adenotonsillectomy two weeks after initiation of treatment. The main outcome of the study was to determine the number of T-regulatory cells (specialized cells that act to suppress activation of the immune system) as well as levels of various cytokine receptors in both groups.

After the adenotonsillectomy, the authors weighed the removed adenoids from children in both groups to determine if treatment had worked to reduce the size of the tissue, but they found no significant difference in adenoid weight between the two groups.

The authors found that the treatment group had reduced levels of spontaneous IL-6 (a type I cytokine receptor that regulates cell growth and differentiation) production. The IL-6 cytokine is secreted by T-regulatory cells and induces cell growth differentiation in certain cells. The authors also note that it is an important predictor of cardiovascular risk and mortality. The treatment did not appear to have reduced levels of any other cytokine receptor examined, nor was there a significant difference in the number of T-regulatory [cells](#) produced in each group.

"In this study, we show reduction of IL-6, a proinflammatory cytokine, in adenoid tissue obtained from [children](#) with obstructive sleep apnea syndrome treated with fluticasone furoate nasal spray," the authors conclude. "This reduction could contribute to the clinical efficacy of this class of medications in the treatment of childhood obstructive [sleep apnea](#) syndrome."

More information: *Arch Otolaryngol Head Neck Surg.*
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