

High-dose fluticasone effective against eosinophilic esophagitis

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Results from a clinical trial show that high doses of the corticosteroid fluticasone propionate safely and effectively induce remission in many people with eosinophilic esophagitis (EoE), a chronic inflammatory disease of the esophagus characterized by high levels of white blood cells called eosinophils. However, some trial participants did not respond to fluticasone even after six months of high-dose treatments, providing evidence that certain people with EoE are steroid-resistant. By analyzing gene expression—the degree to which certain genes are turned on or off—in esophageal tissues, the scientists identified a cluster of genes that may help predict steroid responsiveness. The study, led by Marc Rothenberg, M.D., Ph.D., of Cincinnati Children's Hospital Medical Center and the University of Cincinnati, was supported by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health.

EoE affects an estimated 1 in 2,500 people. Symptoms vary, and may include trouble swallowing and abdominal pain. Based on previous research by Dr. Rothenberg and others, physicians typically use oral fluticasone off-label to treat patients with EoE, but studies have shown that some patients do not respond to 880-microgram daily doses of the drug. In the current study, researchers evaluated the effectiveness of a higher dose in adults and children with EoE. For three months, 28 [participants](#) swallowed 1760 micrograms of fluticasone each day, while 14 received placebo. At the end of the three-month period, 65 percent of participants who took the drug were in complete remission, based on the near absence of eosinophils in their esophageal tissues, compared to

none who took placebo. Those in remission were switched to 880 micrograms of daily fluticasone for an additional three months, and 93 percent remained in complete or partial remission. Participants who did not respond to fluticasone during the first three months received 1760-microgram doses for three more months, but remained largely unresponsive to the drug. The findings suggest that approximately 25 percent of people with EoE do not respond to steroid treatment.

The scientists also evaluated [gene expression](#) in esophageal tissue samples. They found that the gene expression signatures of participants who went into remission changed substantially, becoming similar but not identical to those of healthy people. The changes in signatures of participants who did not respond to fluticasone were small, suggesting that these participants were resistant to the drug. The investigators identified 15 genes that may be useful in identifying patients who will respond to steroid treatment, but further studies are needed to confirm this finding.

More information: BK Butz et al. Efficacy, dose reduction, and resistance to high-dose fluticasone in patients with eosinophilic esophagitis. *Gastroenterology* [DOI: 10.1053/j.gastro.2014.04.019](https://doi.org/10.1053/j.gastro.2014.04.019) (2014).

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