Blockade of histamine receptors suppresses intestinal anaphylaxis in peanut allergy

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Credit: National Jewish Health

Simultaneous pre-treatment with antihistamines that block both the H1 and H4 antihistamine receptors suppressed the gastrointestinal symptoms of food allergy in mice, according to researchers at National Jewish Health. The findings, published online in the journal *Allergy*, provide new insight into the development of food allergy and suggest potential therapies for prevention and treatment of food allergy.

Although recent findings have suggested that early exposure to peanuts can help prevent peanut allergy, the only effective therapy currently available for existing cases remains avoidance.

Histamine is a key participant in most allergic diseases including asthma, hay fever, and food allergy. When released by basophils or mast cells it can trigger a variety of symptoms, including inflammation, itchiness and mucus production. There are four histamine receptors found on a wide variety of cells in the body. Most commercially available antihistamines block only the H1 antihistamine receptor.

Meiquin Wang, MD, PhD, Erwin Gelfand, MD, and their colleagues at National Jewish Health pretreated mice sensitized to peanut with the H1 receptor antagonist loratadine (Claritin), and the experimental H4 receptor antagonist JNJ7777120, separately and in combination.

Separately, the two antihistamines had some effect on the intestinal response of the sensitized mice to peanut. When mice were pre-treated with both antihistamines together, diarrhea, intestinal inflammation and other symptoms were almost completely blocked. In vitro experiments indicated that the antihistamines work by suppressing the accumulation and function of dendritic cells, which take up peanut protein and present it to T cells of the immune system.

More information: Meiqin Wang et al, Combined Blockade of the Histamine H1 and H4 Receptor Suppresses Peanut-Induced Intestinal Anaphylaxis by Regulating Dendritic Cell Function, *Allergy* (2016). DOI: 10.1111/all.12904

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