



Globally increasing concern for Histamine Resistance and Leaky Gut Syndrome.

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Abstract:

Histamine is a biogenic amine performing pleiotropic effects in humans, involving tasks within the immune and neuroendocrine systems, neurotransmission, gastric secretion, cell life and death, and development. It is the product of the histidine decarboxylase activity, and its effects are mainly mediated through four different G-protein coupled receptors. Thus, histamine-related effects are the results of highly interconnected and tissue-specific signaling networks. Histamine is naturally produced in our body by mast cells or white blood cells, and it performs different functions by binding with histamine receptors. Depending upon their location, histamine receptors control quite different body functions:

- Histamine H1 receptors: Smooth muscle and endothelial cells affecting skin; blood vessels (Benadryl and Claritin block activity of these receptors)
- Histamine H2 receptors: Cells in the intestines control acid secretion, abdominal pain, and nausea; heart rate (Histamine H2 receptor antagonist drugs have been used to reduce symptoms of dyspepsia and GERD)
- Histamine H3 receptors: Central nervous system controlling nerves, sleep, appetite and behavior
- Histamine H4 receptors: Thymus, small intestine, spleen, colon, bone marrow and white blood cells; immune function and inflammation

Histamine intolerance occurs when you have too much histamine than your body is able to effectively break down. The main enzymes in your body responsible for breaking down histamine are diamine oxidase (DAO) and histamine-N-methyl transferase (HNMT). The mechanism of Histamine intolerance is proposed to be a genetic or acquired impairment in one of these two enzymes. DAO is produced in the intestine, so if the intestinal function is compromised there may not be enough DAO



to degrade histamine normally. DAO activity can also be inhibited by certain medications. Factors that contribute to the interference of DAO and HNMT enzymes include:

Sometimes histamine levels are raised due to allergy, but histamine intolerance is not a true allergy and it will not show up on allergy tests. Some of the symptoms mimic a true allergic reaction, but HIT is not mediated by IgE, so skin testing and blood allergy tests will be negative. Histamine intolerance appears to be more prevalent when there is underlying gastrointestinal dysfunction such as inflammatory bowel disease, celiac disease, IBS, etc. Histamine is an undercover agent for multiple rare diseases.

We often see histamine intolerance in conjunction with leaky gut. Since intestines are where most of the DAO enzyme is produced, body may produce less DAO when the gut is inflamed or damaged, thus leading to a buildup of histamine.

Publication of speakers:

1. Histamine intolerance- E Hanuskova , J Plevkova
2. Hanusková E, Plevková J. Histamínová intolerancia [Histamine intolerance]. *Cesk Fysiol.* 2013;62(1):26-33.
3. Histamine intolerance- Kiara Anthony
4. Your Mystery Food Sensitivity Might Actually Be a Histamine Intolerance- Rachael Schultz
5. Curing Histamine intolerance
6. Histamine Intolerance: Symptoms, Diet And Treatment- Amy Burkhart M.D

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