

The Pivotal role of Histamine in the Symptoms of Food Intolerance

Abstract from the Course Syllabus

Histamine is well-known as the principal mediator in the allergic response. The symptoms of itching, tissue swelling, flushing, and increased heart rate are evidence of histamine's function in vasodilation and vascular hyperpermeability. Histamine contributes to the bronchospasm of asthma as a result of its ability to mediate contraction of smooth muscle, which also may result in motility disturbances in the digestive tract. Headaches, dizziness, and light-headedness reflect histamine's function as a neurotransmitter. However all of these symptoms can occur in the absence of immunologically-mediated allergy (Type I IgE-mediated hypersensitivity).

It is becoming increasingly recognized that "histamine intolerance" is a disease entity distinct from allergy. It is likely that excess histamine in this situation is due to a defect in the catabolic enzymes responsible for histamine degradation; these include diamine oxidase (DAO) and histamine N-methyl transferase (HMT), which are produced at different sites within the body.

Histamine is produced within the body (intrinsic histamine) and stored within granulocytes, especially mast cells; it also comes from certain foods, especially those using microbial fermentation in their manufacture (extrinsic histamine). Other sources of histamine include the products of metabolism of the microbial flora of the large bowel. Intrinsic and extrinsic histamine are catabolized differently in the human body. Intrinsic histamine is usually broken down by HMT at various sites, while most of the extrinsic histamine is catabolized within the digestive tract by DAO. When either of these enzymes is deficient, excess histamine leads to symptoms.

Restricting extrinsic histamine in any situation where histamine excess is the cause of symptoms may reduce or eliminate the symptoms by decreasing the level of available histamine to below the symptom range. This is the basis of the histamine-restricted diet.

The presentation discusses histamine metabolism as it relates to histamine intolerance; reasons for deficiencies in histamine catabolizing enzymes; the role of food and the microbial flora of the bowel as sources of histamine; and the histamine-restricted diet as a method of reducing extrinsic histamine and the level of "total available histamine" in the body.