UNDERSTANDING HISTAMINE INTOLERANCE

The Roles of DAO and HNMT

RECOGNIZING HISTAMINE INTOLERANCE & SEEKING DIAGNOSIS

If you notice recurring symptoms like headaches, hives, or digestive issues after eating certain foods, consider tracking your symptoms and discussing them with a healthcare professional for proper evaluation. Keeping a detailed symptom and food diary can help identify patterns that may point to histamine intolerance, and a medical provider can guide you through appropriate testing and management strategies.

WHAT IS HISTAMINE?

Histamine is a natural chemical that plays several important roles in the body, such as supporting immune responses, aiding digestion, and helping regulate blood flow. It also acts as a neurotransmitter, allowing nerve cells to communicate. However, when histamine builds up in the body, it can trigger uncomfortable symptoms like itching, hives, headaches, digestive problems, and, in severe cases, anaphylaxis. This reaction is called histamine intolerance. Several factors can contribute to histamine intolerance, including genetics, diet, environmental triggers, and certain medical conditions.

HOW GENETIC VARIATIONS AFFECT HISTAMINE BREAKDOWN

Genetic differences can directly impact how well DAO and HNMT enzymes function. People with certain gene variants may produce less active forms of these enzymes, making them more likely to experience histamine intolerance symptoms. For example, a mutation in the AOC1 gene can reduce DAO production, while a change in the HNMT gene can lower the activity of the HNMT enzyme. These genetic factors, combined with other influences like diet and environment, help explain why some people are more sensitive to histamine than others.

DAO AND HNMT: KEY ENZYMES IN HISTAMINE BREAKDOWN

Two main enzymes help keep histamine levels in check: diamine oxidase (DAO) and histamine N-methyltransferase (HNMT). While both are essential, they work in different areas of the body and have unique functions:

- DAO (Diamine Oxidase): DAO is primarily active in the gut, where it breaks down histamine from foods before it is absorbed into the bloodstream. If DAO levels are low, whether due to genetics, digestive issues, or certain medications—the body struggles to break down dietary histamine, leading to symptoms of intolerance. For example, genetic changes in the AOC1 gene, can reduce DAO activity.
- HNMT (Histamine N-methyltransferase): HNMT works inside the cells throughout the body, especially in the liver, kidneys, and brain. Its main job is to break down histamine produced within the body, rather than from food. Variations in the HNMT gene, can decrease HNMT activity and make it harder to process internal histamine.

MANAGING HISTAMINE INTOLERANCE: PRACTICAL TIPS

Managing histamine intolerance involves several strategies to reduce symptoms and improve quality of life:

- Identify and avoid high-histamine foods: Keep a food diary to track symptoms and pinpoint problem foods. Limit or eliminate foods known to be high in histamine or that trigger histamine release.
- Read food labels carefully: Look for words like “fermented,” “aged,” “smoked,” “cured,” and “dried,” as these often indicate higher histamine levels. Avoid processed foods with additives and preservatives, which can worsen your symptoms.

- Choose alternatives: Fresh meats, most fresh or frozen fruits and vegetables (except those listed as high-histamine), gluten-free grains like rice and quinoa, and dairy substitutes canbe good options for those with histamine intolerance.
- Consider supportive supplements: Some supplements may help manage histamine intolerance, such as vitamin C and quercetin, which both support DAO activity and may help reduce histamine levels. Always consult with a healthcare provider before starting new supplements.
- Avoid triggers: Besides food, limit alcohol (which blocks DAO) and check with your doctor or pharmacist about any medications that might interfere with DAO orHNMT activity.

Because histamine intolerance can vary widely from person to person, it's important to tailor dietary changes to your own needs and consult with a healthcare provider before making significant adjustments.

HIGH HISTAMINE FOODS

- Fermented and Aged Foods: Alcohol (wine, beer, champagne), sauerkraut, soy sauce, vinegar, aged cheeses, smoked meats. Fermentation and aging raise histamine levels.
- Certain Fruits and Vegetables: Citrus fruits, strawberries, bananas, tomatoes, spinach, eggplant. These may naturally contain or trigger histamine.
- Nuts and Legumes: Walnuts, cashews, peanuts, beans.
- Seafood: Shellfish, some fish (especially if not fresh, spoilage increases histamine.)
- Processed and Packaged Foods: Dried fruits, chocolate, food dyes/additives, wheat products. Processing and additives boost histamine content.

Understanding your body's response to histamine, and the role of DAO and HNMT enzymes can empower you to make informed decisions about your diet and lifestyle. If you suspect you have histamine intolerance, work closely with your healthcare provider to create a plan that's right for you. With the right strategies, it's possible to manage your symptoms and enjoy a better quality of life.