



Episode 253: Histamine as a Migraine and Headache Trigger

Editor's Note: Throughout this conversation, the term "histamine headache" is used informally to describe headache or migraine attacks that may be influenced by histamine. The discussion is not referring to the specific ICHD-3 diagnosis of histamine-induced headache.

Lindsay Weitzel, PhD:

Hello everyone, and welcome to HeadWise, the videocast and podcast of the National Headache Foundation. I'm Dr Lindsay Weitzel and I have a history of chronic and daily migraine that began at the age of four. I'm happy to be here today with Dr. Amelia Barrett. Hi, Dr. Barrett, how are you today?

Amelia Barrett, MD:

Hello, Dr. Weitzel, I am just fine. Thanks for having me here today.

Lindsay Weitzel, PhD:

Thank you for joining us. We all love it when Dr. Barrett comes and joins us. She has so much to tell us. We learn so much. Dr. Barrett is a board-certified neurologist and the creator of the Migraine Relief Code. Today we are going to talk about what is often called "histamine headache." Let's start with what is histamine, because I don't think a lot of people really understand that this is a type of headache in and of itself. So, what is histamine? We usually hear about it when we talk about taking an antihistamine for allergy symptoms, etc.

Amelia Barrett, MD:

Histamine is just a chemical messenger that the cells in your immune system use. And it does come into play for things like allergies, which is why we think histamine, antihistamine, antihistamines are for allergies. That's literally what that chemical messenger is doing in the body. It's recruiting some of those cells that are involved in handling allergic reactions.

Lindsay Weitzel, PhD:

Why does histamine trigger headache in certain people?

Amelia Barrett, MD:

Histamine can accumulate in the body in varying degrees in different people depending on partly genetics, depending partly on what your environmental exposures are, and depending on how your body processes this, other things that are going on in your body at that time. So, histamine in the

process of recruiting these immune cells, I think of your immune cells as first responders at an accident. They're there on the spot, assessing the damage, figuring out what needs to be done. And then I think of inflammation as sort of the radio signals that they'll make to call in extra help. Oh, we need an ambulance. We need a tow truck, whatever the situation calls for.

Your body does something quite similar when your immune system is called in to play to repair your cells. So, you can think of the histamine as being sort of one of those radio calls that calls in extra cells. Now, let's bring this back to migraine. The reason this matters is that inflammation, those chemical messengers like histamine and other chemicals, those directly lower your migraine threshold in the brain. So, the trigeminal nerve endings can detect higher levels of inflammation in the brain. In this case, it's coming from the body, and they can detect that. And that's one of the things that will make the trigeminal nerve fire and set off that cascade that results in the pain experience that we know as migraine.

Lindsay Weitzel, PhD:

You brought it straight to migraine. Is "histamine headache" always a migraine or is it sometimes a separate type of headache in and of itself?

Amelia Barrett, MD:

No. If you don't have a predisposition towards migraines, histamine will just cause a regular headache for you. If you have migraines, of course, it's much more likely to be a migraine trigger and to trigger your usual type of headache. Now, what can be tricky sometimes for people who do have migraine is that a transient rise in your histamine levels can cause just a regular headache for you. Also, as you know, not every trigger is always going to result in a migraine. And a "histamine headache" can be one of those things that just lasts a couple of hours. It comes on right after you eat some foods that are high in histamine, and then it goes away. So, it can kind of go either way.

Lindsay Weitzel, PhD:

Is there a specific enzyme that breaks down histamine?

Amelia Barrett, MD:

Yeah, there is. I'm so glad you brought this up. It's called DAO (diamine oxidase) and your levels of this enzyme, of course, fluctuate in part based on your genetics. Simple testing can tell you that. A lot of people have already had that done. And what it does is it breaks down this chemical in your body. Of course, we're built to degrade these signals that our immune system makes. So, we have mechanisms that enable to do this, and DAO is the effective ingredient in this case.

Lindsay Weitzel, PhD:

Does "histamine headache" come with any other symptoms in addition to just head pain?

Amelia Barrett, MD:

Yeah, it does. Histamine is actually a vasodilator meaning it opens up your blood vessels. And so sometimes for people that will make them feel kind of hot and flushed. They may look a little red. That histamine can be part of an allergic reaction. You may have other allergy symptoms. You may have a runny nose. You might have watery eyes. You might have itching. So, all of those symptoms can go together as part of that histamine reaction, and headache might only be part of the picture for you.

Lindsay Weitzel, PhD:

I think something that maybe certain people may not have known before we brought it up, is that not only can you have a histamine reaction, but there is histamine in some foods. So, what are some foods that are high in histamine that might trigger a "histamine headache" if you're prone to it?

Amelia Barrett, MD:

Really great topic to talk about. There's a lot of overlap between the foods that cause "histamine headaches" and the foods that cause "tyramine headaches." What's happening in the case of histamine is that your body is breaking down the proteins in the food that you eat. For certain foods, those proteins have already been altered by bacteria. For example, when we cure meats, when we smoke meats, when we age cheese, when we ferment foods, sauerkraut, yogurt, when we make wine, when we make beer, all of those processes take certain kinds of proteins and expose them to bacteria. Those bacteria are what makes the histamine. So those are the foods that are more likely to trigger a "histamine headache." And the big difference with tyramine is it's just different bacteria turning different proteins into different chemicals in your body. Some people are more sensitive to one, some people are more sensitive to another.

Lindsay Weitzel, PhD:

So, this is why, I've always wondered this, but this is why there's so much overlap between "tyramine headache", "histamine headache", and migraine when it comes to food triggers.

Amelia Barrett, MD:

Exactly, exactly.

Lindsay Weitzel, PhD:

Because if you are prone to migraine, these foods will likely give you a migraine instead of just "histamine headache", right?

Amelia Barrett, MD:

Absolutely. Yeah.

Lindsay Weitzel, PhD:

Let's move on to, I don't think we can really have a discussion about "histamine headache" without discussing mast cells and mast cell activation syndrome (MCAS). Can you touch on why the mast cell is so important when it comes to both histamine and migraine?

8:06

Amelia Barrett, MD:

Sure. Mast cells are where histamine comes from. So, remember I was talking about those first responders. You can think of mast cells as being a type of first responder cell or the type of extra support that's called in. So, they are cells. They contain histamine. They come to where they're needed. They release their histamine, which has a certain biological purpose. And this is essentially your body trying to help repair damage. And so that's what mast cells are and why they're important to histamine. It's where the histamine is.

Lindsay Weitzel, PhD:

Many people in our audience are aware that cluster headache is known to be one of the worst pains known to man. What is the connection between cluster headache and histamine?

8:58

Amelia Barrett, MD:

If you are unlucky enough to have those cluster genetics, it's entirely possible that histamine will actually trigger a cluster headache for you rather than migraine or any other type of headache. And there's a sort of an interesting connection to this in a certain part of the brain called the hypothalamus for reasons related to how our nervous system develops essentially. We think that that could be part of that close link between histamine and cluster.

Lindsay Weitzel, PhD:

Could you list any other foods that are high in histamine besides the fermented foods? Is it mostly fermented foods or is there anything else we need to worry about? The cheeses, wine, anything else?

Amelia Barrett, MD:

Yeah. Leftovers unfortunately can be a real problem, which I think is so hard for those of us struggling with migraine. We want to batch cook when we feel good and have food around for later. But I think unless you know how you're wired or you figured this out about yourself, you really have to be careful to just batch cook, freeze, and thaw stuff from frozen. Because leftovers, in essence, what's happening there is that there's an opportunity for the bacteria to start breaking down those proteins in your food. And so, it's the same process as when we are making certain types of food, except it's kind of happening rather than intentionally, in the process of food production it's happening accidentally in your refrigerator. So, you do have to be very careful about those leftovers if histamine is a factor for you.

10:37

Lindsay Weitzel, PhD:

I bet some people out there are wondering if it might help to take an antihistamine medication for "histamine headache." And if so, do you take it before eating the foods that caused the headache, or would it still help after the headache starts?

Amelia Barrett, MD:

It's mostly a before kind of a solution, but I love it that you brought this up. And probably around the year 2000, there was some good randomized controlled trial data showing that antihistamines can actually reduce migraine frequency and severity in some people. And I think the people we were helping with this is exactly this population of people. They have something going on with their mast cells. They genetically can't process histamine. Those were the people that we were helping by giving them an antihistamine every day, that subset of people. So, I don't think it's fair to say that all people with migraine need an antihistamine every day. Of course not. But for this subset of people, it can be an effective solution. So, I think an easy way to think about it is if it's allergy season for you and you get migraines, that's probably a good time to add on an antihistamine every night before bed. If you have a headache and you think, oh my gosh, maybe it's those leftovers, probably not going to work too well to take an antihistamine at that point.

Lindsay Weitzel, PhD:

Is there anything else that you think we can add to this discussion of "histamine headache" today?

Amelia Barrett, MD:

I just want to really encourage people to never give up. The science of migraine is changing so fast. And I know how frustrating it is. You're working so hard. You're listening to podcasts. You're trying to find out all the information you can. You're changing your life in every way you can. But I just want to make sure that everybody knows that science is changing literally every day. We are learning so much more, so don't ever give up. There are strategies out there that are going to help you reduce your migraine frequency and severity, and I just want to encourage you to keep going until you get back the life that you love.

Lindsay Weitzel, PhD:

That's great advice. Thank you so much, Dr. Barrett. And thank you everyone for joining us. Please join us again on the next episode of HeadWise. Bye bye.

This videocast is for educational purposes only and you should consult with a healthcare provider about your symptoms.