MIGRAINE WORLD SUMMIT

INTERVIEWS WITH WORLD LEADING EXPERTS

# TRANSCRIPT

## UNDERSTANDING VESTIBULAR MIGRAINE

**SHIN BEH, M.D.**

**Introduction** (00:00): The symptoms are similar to that of people who have migraine — like the light sensitivity, sound sensitivity, intractable nausea, and some motion sickness in some. But one difference is that a lot of patients with vestibular migraine can also have a lot of constant lightheadedness, dizziness — this disequilibrium that's present all the time and that's aggravated by busy visual scenes that can be aggravated by moving too quickly, as well. A lot of my patients tell me that this type of dizziness is, in fact, much more disabling for them compared to the attacks of vertigo that they experience from the attacks.

**Elizabeth DeStefano** (00:44): Severe headache is the symptom many think of first with migraine, but for some people there may be other symptoms — like vertigo — that are most disabling and prominent. Vestibular migraine can have devastating impacts on quality of life. Despite that, it's often challenging for people with vestibular migraine to receive a diagnosis and effective treatment. How do we know the difference between vestibular migraine and other forms of migraine with vertigo or dizziness, and furthermore, other conditions that share this prominent symptom? Here to help us address these questions and more is Dr. Shin Beh. Dr. Beh, welcome to Migraine World Summit. To start, what is vestibular migraine?

**Dr. Beh** (01:27): In a nutshell, vestibular migraine is a form of migraine that manifests with vertigo and dizziness.

**Elizabeth DeStefano** (01:35): To just what extent can those symptoms cause disability?

**Dr. Beh** (01:42): It's useful to divide the symptoms of vestibular migraine into ictal and interictal symptoms. So ictal symptoms are those that happen during an attack, and interictal symptoms are those that happen in between the attacks. The ictal symptoms are, of course, the most bothersome — the most prominent one would be vertigo. So you know, vertigo can be a very disabling symptom, especially if it happens pretty frequently. It can disrupt a person's ability to perform their jobs and the activities of daily living. There can be other ictal symptoms, like light sensitivity, sound sensitivity, nausea. Headaches are not as frequent and usually, if they are present, they are much less severe and disabling compared to vertigo. But in some people the headaches also can be pretty disabling. Another point to consider is that once an attack is over, a person doesn't automatically bounce back to normal. After an attack of vertigo, the brain can be left this very disoriented, dizzy, kind of feeling "off" for a few days and sometimes even up to a few weeks. And this also can be a source of disability for some.

**Dr. Beh** (02:59): The interictal symptoms for vestibular migraine: A lot of the symptoms are similar to that of people who have migraine — like the light sensitivity, sound sensitivity, intractable nausea, and some motion sickness in some. But one difference is that a lot of patients with vestibular migraine can also have a lot of constant lightheadedness, dizziness — this disequilibrium that's present all the time and that's aggravated by busy visual scenes that can be aggravated by moving too quickly, as well. A lot of my patients tell me that this type of dizziness is, in fact, much more disabling for them compared to the attacks of vertigo that they experience from the attacks.

**Elizabeth DeStefano** (03:42): So those interictal symptoms of the vertigo — those symptoms that are happening between actual attacks — can actually be the most disabling?

**Dr. Beh** (03:51): Absolutely. So, a good example is, going to the grocery store can be a very unpleasant experience for many people with vestibular migraine because of the overwhelming visual scenes, the fluorescent lights, the shiny floors; there are crowds that you have to deal with. And so, even if you're not having an attack of vestibular migraine, navigating that type of environment can be a very unpleasant experience. And for some, they have to depend on family members or even friends to do these errands for them, to go shopping for them. Computer work can also be another one that's very disruptive for a lot of patients, especially now with COVID going on. Screen brightness can be a problem; scrolling on the screens can create a lot of dizziness. And so, you can imagine, many jobs depend on computer use, and if you're suffering from dizziness from these types of stimuli, it can be pretty disabling.

**Elizabeth DeStefano** (04:46): When vestibular [symptoms] are occurring ictally — during an attack — are they more likely to happen at a certain stage of an attack? Prodrome, aura — if the person experiences aura — or even postdrome? Or across time?

**Dr. Beh** (05:04): It can happen at any time. So, between patients it tends to be very different. In some people, it can happen during the aura phase. In some, it's during the headache phase or the attack phase, and some, in the postdrome phase. But it varies from person to person.

**Elizabeth DeStefano** (05:21): And again, for some people with vestibular migraine, there may be no actual headache phase. Is that correct?

**Dr. Beh** (05:27): That phase, instead, is the full-blown vertigo.

**Elizabeth DeStefano** (05:30): So, vertigo or dizziness are common with migraine, in general. So what is the difference between vestibular migraine and migraine with dizziness or vertigo as part of the attack?

**Dr. Beh** (05:43): You're absolutely right. About half of people who have migraine tend to have issues with vertigo or dizziness. If you follow the ICHD criteria for vestibular migraine, what you will need for the diagnosis of vestibular migraine would be at least five vestibular symptoms — symptom attacks — that last between five minutes to 72 hours. And at least half of them have to be accompanied by a migraine feature — can be your typical headache, light and sound sensitivity, or the visual aura. And the person has to have a current or previous history of migraine. So technically, if you meet that criteria you get the diagnosis of vestibular migraine. In some people, the attacks of vestibular symptoms may not strictly follow that pattern. I've seen patients who have discrete attacks of migraine headache with attacks of vertigo that seem to have the characteristics of migraine but don't really meet the full criteria for the diagnosis of vestibular migraine.

**Dr. Beh** (06:46): For example, they get vestibular symptoms during their period; if they eat certain foods, they get the vestibular symptoms accompanied by cognitive difficulties — the dreaded brain fog, or sensitivity to smells — but not the full criteria of vestibular migraine. So in those patients, I tend to use a diagnosis of migraine-associated dizziness or migraine-associated vertigo. But the preferred term — if they meet the criteria for the diagnosis — would be, of course, vestibular migraine.

**Elizabeth DeStefano** (07:22): Given your mention of triggers, Dr. Beh, are there any vestibular-migraine-specific triggers of attacks?

**Dr. Beh** (07:31): Most of the triggers are pretty similar to migraine: weather changes, stress, menses, skipping meals, sleep deprivation. The one I would say would be more unique to vestibular migraine would be activities that involve a lot of head movement or a lot of visual stimuli. Since many people with vestibular migraine tend to be sensitive to these things, if they have to perform any activities that involve a lot of that, that could potentially trigger a vestibular migraine attack for them.

**Elizabeth DeStefano** (08:02): How does the prevalence of vestibular migraine differ among adolescents and adults?

**Dr. Beh** (08:09): Vestibular migraine tends to affect older people. If you compare it to migraine headaches — typically people get migraine during their 20s, late teens, early 30s; that's the age group that is predominantly affected by migraine — vestibular migraine tends to occur in people who are in their late 30s, mid-40s, or even older. So we're not so clear on the exact reason for this division but it tends to affect adolescents and young adults much less, compared to older adults.

**Elizabeth DeStefano** (08:45): Well, are there any connections between vestibular migraine in certain stages of life, whether that's certain hormonal phases, like menopause or others?

**Dr. Beh** (08:56): Yes. Vestibular migraine tends to affect people following menopause. Vestibular migraine patients that I see tend to suffer from migraine headache attacks during their reproductive years, and then the headaches tend to improve once they go through menopause, but then the manifestations of vertigo and dizziness tend to set in after.

**Elizabeth DeStefano** (09:20): Now, to ask you about some other conditions, if I can, because this was of great interest to our audience ... What about the difference between vestibular migraine and a few other specific conditions: Meniere's disease, BPPV — which is benign paroxysmal positional vertigo, of course — or PPPD, persistent-postural perceptual dizziness?

**Dr. Beh** (09:43): Meniere's disease is a particularly interesting one. It has a lot of relationship to migraine, and no one really fully understands why just yet. So, 50% of people with Meniere's disease tend to have migraine. Meniere's disease is a condition of the inner ear where something causes the fluid to build up in the inner ear, and as it swells up it reaches a point where the membranes actually rupture and then the fluids mix. And so you get these attacks of ear pressure, roaring tinnitus, and followed by vertigo attacks. Usually, Meniere's disease patients tend to have hearing loss. The hearing loss is pretty characteristic of Meniere's disease. It is a low-frequency, asymmetric type of hearing loss, so it tends to affect one ear more than the other. Vestibular migraine does not cause such hearing loss.

**Dr. Beh** (10:41): Typically with vestibular migraine, a person may have symmetrical but pretty mild hearing loss — not low-frequency, asymmetrical type of hearing loss. There are people with both conditions — vestibular migraine and Meniere's disease — and with those people it can be a little bit difficult to differentiate the attacks at times. Now that being said, Meniere's disease is much less common compared to vestibular migraine. And the attacks of Meniere's disease tend to last between 20 minutes to about 12 hours. Whereas — like we

discussed earlier — for vestibular migraine, the attacks can last anywhere from five minutes to about 72 hours.

**Dr. Beh** (11:23): Now BPPV — or benign paroxysmal positional vertigo — that's the most common cause of vertigo in ducts. What happens in BPPV is that there is a loose calcium-carbonate crystal that breaks off from one part of the ear and then it wanders into a different part of the ear. I have a little model here [holds up demonstration model]. In each of your ears — this is the right one — there are the semicircular canals. These detect angular motion of the head. So if you move your head in a certain way — say if I move my head this way — then this is the movement that will ensue and it will detect that type of movement. And then if I move my head this way, then there is a canal — this canal will detect movements this way. And then moving forward — it detects this one instead. So what happens in BPPV is, a crystal wanders into one of these canals; usually it's this one back here — it's called the posterior canal. And then what happens is, when you move your head in that position — so if I move my head this way and the canal moves — the crystal drags inside the canal and that causes the attacks of vertigo.

**Dr. Beh** (12:28): Typically the attacks of vertigo with BPPV are very short. They only last for a few seconds. So you get this — you move your head in a certain way and then as the crystal moves you get this burst of vertigo. Whereas for migraines — vestibular migraines — although we can manifest a positional vertigo, the positional vertigo tends to persist for a longer period of time. As long as you maintain your head in that particular position, that vertigo tends to last for that duration. The second thing to remember is attacks of BPPV are usually not accompanied by migraine types of features, like the headache, light sensitivity, sound sensitivity, or the visual aura. Then the third thing is, BPPV is quite easy to fix. There are certain physical maneuvers — we don't have to go into that today — that you can do at home yourself that can fix the BPPV, whereas if you were to have migraines — vestibular migraine — those maneuvers won't help them. Triple PD — or persistent postural perceptual dizziness; very similar name to BPPV and we'll call it triple PD just to make things easier — that one is a condition where a person has this constant, ongoing persistent dizziness, unsteadiness, disequilibrium that can be triggered by any condition that causes vertigo. It often coexists with vestibular migraine because vestibular migraine basically causes repeated attacks of vertigo. And so the brain is left in this state of constant dizziness — unable to tolerate quick head movements, unable to look at certain busy visual patterns. And so the two conditions can coexist but triple PD can also be caused by conditions other than vestibular migraine.

**Elizabeth DeStefano** (14:15): That is very interesting and such a great breakdown of the differences and similarities and overlap. So is there any structural problem in the ear of those who have vestibular migraine?

**Dr. Beh** (14:28): Not that we can see. However, in animal studies they show that trigeminal stimulation — trigeminal nerve is the one that's responsible for migraine — stimulating the trigeminal nerve can actually induce inflammatory changes in the ear itself in animals ... from what I'm aware, it's not been done in humans just yet. Although we don't see obvious evidence of damage to the inner ear — could there be damage on a very microscopic, subclinical level? That's a possibility. That may actually explain why BPPV is more common in people who have migraine. Could there be some damage — really small damage — to the inner ear that's causing the loose crystals to come off and cause attacks of vertigo? That's a

possibility. That also may explain why people who have vestibular migraine may develop a little bit of mild hearing loss later in life.

**Elizabeth DeStefano** (15:24): What is the relationship of tinnitus to vestibular migraine?

**Dr. Beh** (15:29): Tinnitus can accompany attacks of vestibular migraine. So depending on the studies that you see — I think if you put them all together — about half of people who have vestibular migraine also describe tinnitus during the attacks.

**Elizabeth DeStefano** (15:42): Viewer Louise mentioned that her primary doctor and her first neurologist were unfamiliar with vestibular migraine. Why is diagnosis so complicated?

**Dr. Beh** (15:53): I think the first problem is that a lot of medical schools don't teach much about vestibular disorders. Vertigo, dizziness — they're not really discussed in detail in the medical curriculum. And even if it is, they typically cover the more well-established — quote unquote — diagnoses like Meniere's disease or BPPV. And so this general awareness of dizziness and vertigo — unfortunately it's not really widespread in the medical community. And then the second issue is vestibular migraine — although the link between vertigo and migraine has been known since the ancient Greeks — the term "vestibular migraine" has only been formalized since about 2012 with the criteria coming up for the diagnosis. So it's a — quote unquote — fairly new diagnosis. Awareness of it is still growing; not to a widespread level just yet, but it's getting there.

**Dr. Beh** (16:56): And then the other problem, I think, is people who automatically equate migraine and headache. When you say "migraine," everyone's first thought: headache, right? And so there are people who — and these are patients and clinicians, as well — a lot of patients don't believe me when I tell them they have vestibular migraine because the first thing is, "I don't have a headache. How can I have vestibular migraine?" And I have patients who believe the diagnosis of vestibular migraine, and when they talk with other physicians, those physicians tell them, "You can't possibly have vestibular migraine; you don't have a headache." So I think we have an issue there.

**Elizabeth DeStefano** (17:34): So, how much does having an accurate diagnosis of vestibular migraine versus migraine with vestibular symptoms matter?

**Dr. Beh** (17:44): In general, an accurate diagnosis can take away a lot of uncertainty. You know, if you have this chronic illness with a lot of symptoms — subjective symptoms that other people can't obviously see — and you've been going from physician to physician, having that accurate diagnosis — that precise diagnosis — allows you to focus your attention on that disorder, and focus on treating it, getting it under control. I think it also helps physicians focus on something. You know, if you're just saying — say you have dizziness that's coming from migraine — it's very vague; it can be difficult for people to wrap their heads around and doesn't really lend itself to much focus or management. That being said, one also must not be too dogmatic. Although there are diagnostic criteria, I think those ... too strictly adhering to the criteria would be good if you're conducting a clinical study but when it comes to treatment, when it comes to managing a patient's symptoms, I don't think we can be too dogmatic. Even if the person doesn't meet the full criteria of vestibular migraine — if the symptoms — if a clinician is fairly certain that the symptoms are coming from migraine, I think it's important to start the appropriate treatment for it.

**Elizabeth DeStefano** (19:10): Do symptoms become more pronounced over time if untreated?

**Dr. Beh** (19:15): They can. You know how chronic migraine tends to also progress if a person has untreated episodic migraine? In the same way a person with vestibular migraine who has a lot of attacks of vertigo can go on to develop worsening symptoms — worsening interictal symptoms. The brain doesn't really recover immediately after a vertigo attack. And so if you have a vertigo attack — you're still kind of disoriented, a little dizzy, and then even before you can become OK again, you get another attack of vertigo. That can put you in this worsening spiral of dizziness, vertigo, dizziness, vertigo, that just gets worse and worse.

**Elizabeth DeStefano** (19:56): Sort of the trap with chronic migraine — the inability to fully recover from one attack before starting another.

**Dr. Beh** (20:01): Absolutely.

**Elizabeth DeStefano** (20:04): So, our viewer Pat — who happens, like you, to be in Dallas — shared that vestibular migraine has totally destroyed her life. She was diagnosed recently by her ENT and has not yet found a provider to help manage her disease. How can people find the help that they need?

**Dr. Beh** (20:24): That one can be a little tough. Recognition of vestibular migraine is actually higher among — from my experience — higher among ENT specialists compared to neurologists; I think partly because most people with vertigo and dizziness get referred to an ENT specialist, but a lot of ENT specialists are not comfortable managing migraine medications — especially now when there are so many more medications and treatments that are available. And so they often refer them to a neurologist for migraine management. But although awareness of vestibular migraine is growing among neurologists, many are still not quite familiar with the condition just yet. So it can be tough; I agree. There are no easy answers at this time on how to find the appropriate specialists. Number one is, you could provide your primary doctor or your neurologist with literature about vestibular migraine so that they can learn a little bit about it and work with you on managing it.

**Dr. Beh** (21:26): Another solution could be, you look for a specialist who's familiar with the condition, and then get on the appropriate treatment plan. A lot of times, geographically, that may be tough. And so some solutions some of my patients come up with is — they speak to me from time to time — we come up with a treatment plan, and they look for a local physician who is willing to work with them and implement a treatment plan, and go for it. Usually, a lot of our primary care providers, I noticed, they are very open to a collaboration like that.

**Elizabeth DeStefano** (21:59): Well that's reassuring to hear. Now, to discuss disease management — how can vestibular migraine be treated, first of all, from a medication standpoint?

**Dr. Beh** (22:11): The pillars of treatment are pretty much the same as with migraine: You find the appropriate preventive treatment, you find an effective rescue treatment, and you treat the symptoms that arise from it. I personally use all the medications basically that are used to treat migraine: so, the triptans, if they have headaches; I use the NSAIDs, as well; the gepants — I have started to use them; the older medications like the tricyclics; the

antiepileptic medications; the newer CGRP monoclonal antibodies. All of those, I use them in the treatment of vestibular migraine.

**Elizabeth DeStefano** (22:47): In your book *Victory Over Vestibular Migraine*, you introduce an action plan. Can you give us an overview of that?

**Dr. Beh** (22:55): Sure. I wanted to come up with something that's easy to remember that encapsulates the whole comprehensive, holistic approach to migraine management. So I divided it up into the ACTION plan. "A" is for "alternative therapies" — like the nutraceuticals, vitamins, herbs, the appropriate exercises to implement. "C" is for "changes" that you have to implement — identify triggers, avoid potential triggers, get on a suitable diet; create, basically, a lifestyle that is migraine friendly: routine sleep and all that good stuff. "T" would be "therapeutic options" — finding the right preventive medication, finding the right rescue medication if you need them. "I" is for the "interictal symptom management." Migraine is not just the headache. Migraine is not just the vertigo attack. You can have a lot of comorbid issues like anxiety, depression, insomnia, sleep apnea, motion sickness; and holistic treatment of migraine and vestibular migraine has to take into consideration all of these things. And the final "O-N" — is planning to move "on." Life goes on. It's important to consider what sort of impact that migraine or vestibular migraine could have on your life and to make plans for the future — job plans, how to build a little support network so that you have people that you can speak to, people you can depend on, people you can turn to.

**Elizabeth DeStefano** (24:28): Some very important parts of disease management. You mentioned exercises — are there any specific to treating vestibular migraine?

**Dr. Beh** (24:40): For vestibular migraine specifically, we are going for exercises that help make the brain less sensitive to certain things — like moving around too much or certain visual type of stimuli. And so in that vein, exercises like yoga, like Tai Chi, or vestibular therapy can be very helpful. They help make the brain less sensitive to all of these types of stimuli.

**Elizabeth DeStefano** (25:04): Natalie asked: "Are there any options in neuroplasticity training for vestibular migraine?"

**Dr. Beh** (25:11): Absolutely. Neuroplasticity is very important in vestibular migraine. You have bad neuroplasticity and you have good neuroplasticity. So, an example of bad neuroplasticity is when a person becomes very vigilant of their symptoms — hypervigilant — becomes anxious about many things that make them dizzy and then as they become more aware of that, they pay more attention to that, they feel more dizzy, and that spirals out of control. Good neuroplasticity is — on the topic of exercise — as you exercise, as you do your vestibular therapy, your brain learns that it shouldn't be so sensitive to all these things that make it dizzy, and that will help the person recover.

**Elizabeth DeStefano** (25:54): Are there any resources that you'd recommend for those interested in learning more about that?

**Dr. Beh** (26:00): For neuroplasticity specifically, I'm not aware of any, but the VeDA website — the Vestibular Disorders Association website — is a good one if you're looking for a vestibular therapist or resources on vestibular literature.

**Elizabeth DeStefano** (26:17): Is there any evidence to suggest meditation may be helpful in this context?

**Dr. Beh** (26:22): Absolutely. Meditation can be very useful — especially mindful meditation. Anxiety is a huge part of any condition that causes vertigo and dizziness. Mindful meditation can definitely be used to address that. And it can be useful if people have depression and [in] people who have insomnia, as well. And those, as you know, are very, very common in migraine conditions.

**Elizabeth DeStefano** (26:45): So, there's at least one new treatment that's being developed to potentially treat migraine through gentle puffs of air into the ear. Might that be particularly helpful for those with vestibular migraine or vestibular symptoms?

**Dr. Beh** (27:01): That's a very interesting one. You know, I've read about that. So far the studies into it are small but I think the potential for it is quite exciting. Based on how it works — it seems that puffing the air into the ear would stimulate several cranial nerves. You have the vagus nerve, you have the trigeminal nerve, the glossopharyngeal nerve, and the facial nerve. Now, we know that the Cefaly device can help with migraine — that stimulates the trigeminal nerve. And then the GammaCore device stimulates the vagus nerve. And so those work, right? In my publications I found that the Cefaly device and the GammaCore device helped with vestibular migraine. So that device where it puffs air in the ear — that could potentially help. It helps ... it stimulates the trigeminal nerve, the vagus nerve. So I'll be very interested to look at it further.

**Elizabeth DeStefano** (27:54): More broadly speaking — what does the future hold for those living with vestibular migraine, from your perspective?

**Dr. Beh** (28:02): As we see the field of migraine advance — I mean, these are exciting times of migraine. You have so many new medications that have been approved specifically for migraine within a short period of time. We have more that are coming down the pipeline. I think as the field of migraine treatment advances, that also will advance the treatment of vestibular migraine. A lot of the treatments that are used for migraine can be used for vestibular migraine.

**Elizabeth DeStefano** (28:27): Wonderful. Well Dr. Beh, are there any final thoughts that you'd like to leave with the audience?

**Dr. Beh** (28:35): I think the main thing to remember is not to give up. It's a tough diagnosis. It can be tough finding the right diagnosis but don't give up. There's a lot of hope and a lot of treatments that are out there. Most of my patients recover. Most of my patients bring their vestibular migraines under control.

**Elizabeth DeStefano** (28:55): Thank you for that message of hope, which is important to hear. Where can we learn more about what you're doing or follow your work?

**Dr. Beh** (29:03): You can follow me on Twitter: I'm @thedizzydoc on Twitter. That's probably the easiest way.

**Elizabeth DeStefano** (29:11): And that's @thedizzydoc?

**Dr. Beh** (29:13): Yep.

**Elizabeth DeStefano** (29:14): Wonderful. Well, we have learned so much today from you about vestibular migraine — such an incredibly important topic, and we know so many people will be grateful for this information and the time you've taken to share your expertise. Thank you so much, Dr. Beh, for joining us here on the Migraine World Summit.

**Dr. Beh** (29:32): Thank you for having me.