Episode 169: News Edition January 2024

Lindsay Weitzel, PhD:
Hello, everyone, and welcome to HeadWise, the weekly video cast and podcast of the National Headache Foundation. I'm Dr. Lindsay Weitzel. I'm the founder of Migraine Nation, and I have a history of chronic and daily migraine that began at the age of four. We have a super exciting episode today. This is our monthly news episode with Dr. Tim Smith. Hello, Dr. Smith, how are you today?

Tim Smith, MD:
Doing well, thanks for having me again.

Lindsay Weitzel, PhD:
Well, thank you for being here. Dr. Smith is a regular, especially for our news episodes because of his extensive experience in migraine clinical trials as the CEO of Study Metrix Research. Dr. Smith is also a board member of the National Headache Foundation. We're very lucky to have him to talk to us about all the latest news, medication approvals, et cetera, each month. So, I believe we'll have a little bit of something for everyone in our episode today.

We are going to start with a study that was done on the eye of people with migraine. So many of us experience symptoms related to our eye with our migraine attacks, whether it's pain, redness, visual changes. And I've always personally found it really odd when people try to tell me that there's not actually anything physically going wrong or different about my eye when it feels so crazy, every time I have a migraine attack. So there was a study published this month in Headache that reports that there may actually be some changes occurring in the eye during a migraine attack. So Dr. Smith, what did they find?

Tim Smith, MD:
These researchers looked at the retinal vessels, the circulation of the back of the eye, where all of your visual images are taken in and processed and sent to the brain for recognition. They used something called OCT angiography. We won't get into too much of the details on that, except it's a non-invasive way of looking at the circulation, the vasculature and the back of the eye and the retina.

And they can look at different measures. They looked at something called vessel flux index or FVI. It’s sort of a way of looking at perfusion, which means circulation, how much blood is going in, how big are the blood vessels, and how good is the circulation to the eye. And these investigators showed that during, and this has been used to study other things, and they use OCT to look at diabetic retinopathy. They use it to look at glaucoma, other eye disorders. And these investigators and others have been looking at using this research tool to understand what's going on during migraine as well.

The unique thing that they did was they studied migraine patients during migraine attacks, and then in between migraine attacks and looking at the differences, and they also compared them to non-migraine controls. So, nicely designed study, really set up to kind of look at the differences, and they did show a significant decrease in this perfusion or retinal circulation associated with migraine attacks. This was really an interesting finding, because if you think about it, the circulation to the retina, this is just a branch off of the carotid artery, which gives the circulation to the brain as well. So, you can kind of almost look at it as a surrogate for what's going on inside the brain as well.

If it happens in the eye and you can measure it there, you can presume that similar things are going on inside the brain. Only you just can't measure those there, not as finely as you can with this instrument. It's a very interesting phenomenon. It's the first physical phenomenon we've seen that really kind of correlates with migraine and the eye.

About a little more than 50% of people do have visual changes with migraine. We know that some people have aura, only maybe about 20% and they don't have it for every single attack. But about 50 or more percent will also report some blurring. This is kind of an interesting finding there.

And the other interesting thing that they commented on in the discussion section was that they think that in some ways, this decrease in retinal perfusion could be responsible or associated with the light sensitivity that migraine patients experience. And I thought that was novel and interesting. I had not thought about it in that way until these investigators brought that up.

Lindsay Weitzel, PhD:
Basically, what that means, just to reiterate and correct me if I'm wrong, is that there was less blood going to the back of the eye during the migraine attack. And that they think that that could be associated with our photosensitivity and our other symptoms that we experience in the eye.

Tim Smith, MD:
We spent a lot of time over the last two- or three-decades kind of debunking a lot of the vascular theories of migraine. I don't think we can go completely away from it. We know there's an association with how much causation is yet to be seen, but there could be subtle changes on this that may be responsible for more symptoms than we previously gave credit to.

Lindsay Weitzel, PhD:
That's another reason I found that paper very interesting. So, moving on to our next paper we're going to talk about. This one is for our friends in the cluster headache community. Whenever there's data reported on cluster headache, we always try to report on it. This group looked at the long-term effectiveness of occipital nerve stimulation, which is the nerves back here, and it is an invasive stimulator that's implanted. And they looked at the effects of this stimulator in patients with chronic cluster headache. This study did have some limitations. It also did not have many patients. The sample size was rather small. But what was reported as far as the long-term effectiveness and quality of life, et cetera?

Tim Smith, MD:
I think you point out the small number, and I think that's reflective of the fact that this is not a widely deployed intervention for cluster headache. It's reserved for people with medication refractory or medication-resistant types of chronic cluster headache. And it is invasive, so it does require surgery to implant the electrodes to stimulate the occipital nerve. And so the stimulator was not an intervention for this study. They took patients that had these stimulators implanted, and then they did some long-term,

in-depth interviews with them, basically. I think the average interview length was like 63 minutes, so this is a really long time to interview.

And so, it's a semi-structured interview type questionnaire and associated structured interview. And basically, what they showed was that regardless of the numbers of cluster headache days or cluster headache attacks, the use of the stimulators for these chronic refractory patients showed an improvement in mood, improvement in energy levels, improvements in feelings of self-control, our being in control, better social participation, more of a positive outlook and better acceptance of their condition. In the strict science world, these are kind of considered soft endpoints, but in the patient world, we really care deeply about those and I think when we're evaluating an invasive procedure, I think most of us would want to really know what are the benefits, just besides cluster headache attacks, how much has my life helped.

And so I appreciate the researchers doing this. It's a lot of work to do all those interviews and then compile. You have to have linguistics experts to pull out all of these different endpoints and really be able to analyze them. And so it's yeoman's work, but I think this was a nice paper about the worst of our chronic cluster patients who have the worst quality of life and require in vain to try to get some relief. And I was happy that they reported out on this.

Lindsay Weitzel, PhD:
Yeah, it's definitely showed some positive things for people who need this procedure. Another study was published this month. For those of us who have gone to pain psychologists and have learned some of these techniques or have maybe learned some of them on their own, we have things like cognitive behavioral therapy and mindfulness.

Now, I love this paper because they combine these. This study was on something called mindfulness-based cognitive therapy, which incorporates components of both cognitive behavioral therapy and mindfulness meditation strategies to help decrease symptoms in people with migraine. What did they find when they combine these two approaches?

Tim Smith, MD:
This is Dr. Betsy Singh and her group. She's a well-recognized PhD pain psychology researcher, sort of a master of these non-pharmacologic interventions and really a top-notch researcher in the field. And so they looked at these two, probably a couple of the most popular bio-behavioral interventions.

We call them the mindfulness meditation. It's sort of like transcendental meditation, but with a focus on being mindful of your central nervous system, your body, where it is in the universe, what's going on in it, and how it affects how you feel. Sort of like an auto-programmed biofeedback kind of thing without having to put monitors on your body and things like that.

And then the cognitive behavioral therapy. This is a term we bat around and for our viewership that doesn't really understand what it means. It's basically using your intellect and your knowledge and increasing your understanding of literally the pathophysiology, what's going on in your body, to understand how to fix it, and how you can influence it on your own.

So, it's how your actions can improve and how your thinking can improve your actions, and then how your actions also positively impact your thinking and your health too. These are interventions that they used, and applying elements of both. They measured something called the pain catastrophizing scale. And this is not something that doctors ordinarily do in the office or that most of our listeners probably, or viewers have never really heard of this or paid attention to it unless they work in a research shop, or maybe if they participate in a study before, because we do these scales in studies.

Sadly, we use them mostly to exclude people from the study if they have high catastrophizing scores. And arguably, these are the patients that need our help the most. They get excluded from clinical trials. And I think for most pharmaceuticals, kind of current thinking is that if you have a high score on that, it's going to make you refractory to therapy.

What was great about this intervention was this score was improved with the non-pharmacologic therapy. These are some of the most studied techniques in the world and have many decades of positive results in studies. Something like over 700 studies show the positive impact on migraine, refractory migraine itself. And I think this is just one more study that really shows the responses are real and may be very helpful, even for patients that may be deemed lost causes as it pertains to medication.

Lindsay Weitzel, PhD:
For people who don't really understand or don't know, and it's not really a popular term among patients, but can you define catastrophizing, pain catastrophizing for us?

Tim Smith, MD:
So the questionnaire focuses on lots of things, and when you catastrophize something, it's what it exactly sounds like, is a stressful event or an exposure or something. It's almost like post-traumatic stress without the initiating event. It's sort of like worry.

Every little thing becomes a catastrophe. It's amplified. And the scale, the PCS scale that they use is a validated, reliable instrument that's been studied. And you can trust the analysis on it because it does discriminate well on patients that are, you can argue that their central nervous system is so sensitized and has such a heightened state of awareness, plus this background of having had dreadful, incapacitating pain attacks. It's easy to see how the brain can sort of glom onto that as an outcome, a forethought, and that's basically what it is.

It's one thing to be in excruciating pain, but it's also another thing to live in fear of excruciating pain and anticipating the worst. And so, every little thing gets amplified. And it's a natural thing for the brain. It becomes, you know, it's kind of a glorified way of pointing out avoidance and avoidance behaviors. People will do that. You may say it's maladaptive coping, but if it works, the brain becomes so sensitized, it's not like they do it on purpose. It's just the way the brain behaves.

Lindsay Weitzel, PhD:
I wanted to make sure everyone understood that so that they understood what exactly the intervention was changing. And because it's important, and the intervention is a great one. It really does help. So, I liked that data a lot.

Let's move on to our next study. This study showed a relationship between monthly number of headache days and quality of life and how this might be impacted by things like depression, anxiety, and allodynia. Now for anyone who doesn't know, allodynia is like an increase in the perception of pain from a stimulus that normally shouldn't be painful. So, if you were like me, and you had migraine as a child, and you had allodynia, you hated it when your mother put your hair in ponytails or pigtails or combed your hair too much, kind of a thing. So that's exactly what allodynia is. Dr. Smith, what did this study find exactly?

Tim Smith, MD:
This is analysis that came out of what we call the CaMEO study. This is a study that was done by Richard Lipton and Dawn Buse and that great group of researchers who have published hundreds of helpful journal articles and publications, some of the top researchers in the world. And they took data from this database. This is a longitudinal database of people with chronic migraine. They look at a lot of influencing factors and relieving factors. And we've come to learn a lot from studies like this about things that cause chronification of migraine, for example, and those kinds of things.

And what they were looking at with this is sort of this relationship between monthly migraine headache days and quality of life. In a nutshell, it makes sense that if you have a reduction in your monthly headache days, you would have a better quality of life. And that is true, but it doesn't always track together exactly. And the suggestion is that quality of life is determined by more than just the number of monthly migraine headache days yet.

Now we really pay attention to the monthly migraine headache days in the research world because the FDA cares about that. The headache societies could care about it, and the insurance payers care about that. I think our patient constituency cares about it, but it's not the only thing. And a lot of our people would say, I don't care how many days of migraine I have during a month as long as I can function. I mean, it's kind of a sad and desperate way to look at it, but it's 100% true. Our patients don't necessarily think of the migraine days as a predictor of their quality of life.

And so, with this severe population of patients, they use some interesting statistical techniques, some regression techniques, to look at how much of the quality of life is determined by monthly migraine headache days. And the answer is 24 to 32%. So, I think a lot of people might say, well, monthly migraine headache days is going to account for at least 80% of my quality of life, but it turns out. So, it's sort of an interesting thing.

When they looked at other things that really showed up on the radar screen, depression counts for 15 to 24%, independent of monthly headache days. Allodynia, you mentioned, this was 9 to 16%, so this is anywhere from 1 out of 8 or 1 out of 10 contributing causes. And then anxiety also 2 to 6%. And then the rest is just made up of a hodgepodge of other stuff that we can't even, or stuff that we don't even measure or don't even know how to measure, and that's still a substantial portion of the contributing factors.

So interesting study. I think it's great to kind of look at in terms of what's important to our patients and basically helping researchers and hopefully policymakers, regulatory people understand the complexity of chronic migraine and the relationship to different factors of quality of life. We can measure different domains, we can measure how much it restricts your activity, this and that, but understanding the reasons why is what this paper tries to get at. And I applaud the researchers for doing the research and publishing their results.

Lindsay Weitzel, PhD:
I love the study. I was a little bit surprised. I thought pain would have mattered more, just in my experience, but I love that they did it, I love the data, and I'm grateful it's there. Is there anything else you'd like to add to our news episode this month before we go?

Tim Smith, MD:
No, at the time of this recording, it's at the end of the year, so I don't know when this will air, but the holiday season is here. I just hope everyone makes it through the holidays. It can be stressful. It can be fun. It can be everything in between. And it's an interesting time for people to have chronic debilitating headache disorders. And we just wish everyone all the best and look forward to a productive and happy and prosperous new year, and hope to see everyone soon.

Lindsay Weitzel, PhD:
Thank you for being here, Dr. Smith, and thank you everyone for joining us this week. And don't forget to tune in next week to the weekly videocast and podcast of the National Headache Foundation. Bye everybody.