

Transcript Details

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Deep Brain Stimulation in the OR: What Neurologists & Patients Can Expect

Dr. Lisk:

Welcome to *NeuroFrontiers* on ReachMD. I'm Dr. Jerome Lisk, and I recently had a chance to speak with Dr. Jerrold Vitek, who's one of the foremost experts on deep brain stimulation. Here's just a small snippet from our conversation focusing on this technology.

Can you, very quickly go through, if a patient is listening right now that is thinking about DBS, from the time they get to the hospital, the day of surgery, what can they expect to happen? Some people think they're going to go under general anesthesia, they've heard about sleep MRI, DBS. Can you just briefly talk about the awake and sleep DBS and what they expect?

Dr. Vitek:

Yeah, I think, still the vast majority of centers are doing awake deep brain stimulation. There are some centers that do asleep. The reason that we prefer awake at this point in time is that we feel we get better localization of where to place the lead. The way that you do this is a patient will come in, there's a stereotactic headframe put on the skull, and then you're brought in, you get a CT scan done that merges with an MRI that was done, sometime before you had to come into the hospital, and that allows the surgeon and if there's a neurologist that works with that surgeon in the operating room, to plan their trajectory and where to place that lead in.

Now MRIs give you a pretty good picture, some MRIs are better than others, and some people have particular software that makes it even better, but even with that, I think there's still a need to refine and define that you were actually in the target before you put the lead in. So in some sites, we do something called microelectrode mapping, which basically takes a small, hair-like device, it's a piece of metal, very small, microns tip to tip, and we can put that lead down into the brain, we drive it down into the brain slowly, remotely, patient's awake, they don't feel any pain, because the brain itself doesn't have any pain endings, so we drive that electrode down and we listen to the sounds of the neural activity. We can convert cell activity into a sound and we listen to the pattern of the sounds. And we can tell when we're actually in the structure we want to be in.

I think it's important to tell physicians out there who may not do this a lot, but in these targets, it's not enough to just hit that target, like the subthalamic nucleus, or the internal segment of the globus pallidus; it's not enough just to hit it. You want to be in a specific region of that target. Because, within the STN, within this GBI target, there are different regions. There are regions related to your movement, there are regions related to your ability to think, memory, concentration, calculations, and there's another area that's related to your mood called limbic. So, there's motor, associative, and limbic territories and they are anatomically in different regions. If you put a lead in the limbic territory, you're not likely to get the benefit you're looking for. In fact, I will tell you, you're not gonna get the benefit you could get if you have it in the motor territory. You're also likely to potentially get some side effects from having it there. So, again, the precision here, is pretty important. I mean, we've always drawn the analogy, this is like real estate. The benefit from DBS is like, location, location, location. And it's critical to get it precisely placed.

Dr. Lisk:

Yes, and that's why I tell my patients that I've been in the OR and doing microelectrode recording for years and the best team is the neurosurgeon and the movement disorder specialist in the OR together.

Dr. Vitek:

You're absolutely right, Jerome. It's critical. You need a team. I think that's what people really need to know, is that, do they have a team? Do you have movement disorder neurologists? Do you have a neurosurgeon? Is there someone in the OR that has an understanding of physiology? You know, some people don't use physiology and, and they may, but they have very special techniques of imaging that they can use. Not everybody does it that way. And there's never been a head-to-head comparison. I will just say that

having done this for many, many years now and done lots and lots of cases, we feel that the microelectrode mapping really helps to improve outcomes.

Dr. Lisk:

That was Dr. Jerrold Vitek talking about deep brain stimulation. For ReachMD, I'm Dr. Jerome Lisk and to hear my full conversation with Dr. Vitek about this technology, visit ReachMD.com/NeuroFrontiers, where you can Be Part of the Knowledge, and thanks for listening!