Parkinson’s Disease
Webcast
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What is Parkinson’s Disease?

Andrew Schorr:
Hello, and welcome once again to an addition of Patient Power sponsored by UCSF Medical Center where we connect you with leading experts from UCSF on very important medical topics. We are going to in this program about the latest in Parkinson’s disease, a very serious movement disorder, and with us is Dr. Jill Ostrem. Dr. Ostrem is a neurologist at UCSF, and she has a particular interest in the surgical approaches for movement disorders in Parkinson’s. Dr. Ostrem, thank you so much for being with us.

Dr. Ostrem:
It is my pleasure.

Andrew Schorr:
Help us understand, I knew there were medications for Parkinson’s. Help us understand what is Parkinson’s and how medications have been used, and then we will get to what you do when the medications are ineffective. First just orient us. What is Parkinson’s?

Dr. Ostrem:
Sure. Parkinson’s Disease is a very common neurodegenerative disease of the brain, which means basically there is a loss of neurons and functioning of these neurons over time leading to different problems with movement as well as non-movement problems. It affects about a million people in the United States, so it is relatively common. We have reasonable treatments for patients with Parkinson’s disease using medications, especially when the disease is first diagnosed and the symptoms are relatively mild, but as the disease advances these medications become less reliable. They may work for certain hours of the day but they won’t give patient’s coverage of their symptoms throughout the entire day, and so that’s why many patients seek additional treatment options including what we are focusing on here at UCSF, surgical treatments for Parkinson’s disease.
Andrew Schorr:
Okay help us understand what that means, surgical options. I’ve heard this term deep brain stimulation. Help us understand where that comes in.

Deep Brain Stimulation

Dr. Ostrem:
Deep brain stimulation has been a type of therapy approved by the FDA since about 2002 for Parkinson’s disease, and what it does is it involves implanting electrodes within the brain that offer chronic stimulation to a specific part of the brain that is impacted by Parkinson’s disease. By delivering this local stimulation you can improve the symptoms of Parkinson’s disease. It doesn’t change the course of the disease. There is still a loss of dopamine and other neurons in the brain, but it very effectively can treat the symptoms of Parkinson’s disease.

Andrew Schorr:
Now tell us how you do this surgery. How big a deal is it? How long is somebody in the hospital? How lasting is it?

Dr. Ostrem:
The surgery itself, for patients who are healthy otherwise and that are not at high risk for surgical complications generally are in the hospital for about two to three days. From a neurosurgical point of view it is an actually pretty safe procedure. There certainly are risks associated where the patients can suffer from a stroke or a hemorrhage in the brain during the procedure, as well as there is certainly the possibility of having an infection of the device after the operation, but overall those risks are actually low compared to many other neurosurgical procedures out there. Most patients recover pretty well and are feeling back to pretty much their baseline within a week I would say.

Andrew Schorr:
How long does it last though? How long can you have this device and have it be effective?

Dr. Ostrem:
We have reasonable follow-up now in pretty good trials showing that the effects of this stimulation continue to be very helpful for at least five to seven years, but we have patients implanted at UCSF for over 10 years now. So it continues to treat symptoms of Parkinson’s disease such as tremor, rigidity or stiffness across the joint, or bradykinesia or slowness of movement, very well actually over time. It doesn’t treat some of the other symptoms of Parkinson’s disease, which can emerge as the disease advances such as problems with your thinking as well as problems with your balance and speech. These symptoms are not as well treated over time with deep brain stimulation.
Andrew Schorr:
What does it doing? If we understand Parkinson’s, what is the deep brain stimulation doing that has effective treatment?

Dr. Ostrem:
We honestly don’t know for sure how deep brain stimulation improves the symptoms of the Parkinson’s disease. Many people are studying this and trying to get better answers, but for many years we knew that if you created a lesion on the brain in part of the basal ganglia called the globus pallidus interna, which is also within the circuit of these deep nuclei within the brain that control movement, that if you lesion this part of the brain, the symptoms of Parkinson’s disease would become better treated. So this led the possibility of implanting a stimulator there and delivering an electrical current, with certain parameters, and we think it is sort of temporarily changing the way the neurons are firing, or talking to each other, and establishing a more normal pattern of neuronal firing, but it is really unclear exactly how DBS works.

Andrew Schorr:
Is the way to think of it almost like a pacemaker for your brain?

Dr. Ostrem:
Yes, that is a very good way to think about it. The nice thing about it is that it can be adjusted so you can increase or decrease the amount of stimulation in the brain, and you can turn it off if you are having problems. In the past, surgical procedures have involved lesioning the brain, or creating a small thermal injury to a part of the brain, and killing permanently those neurons there. This procedure does not result in any permanent brain injury, and it can be completely removed, so it is a reversible type of treatment and an adjustable type of treatment, which is very nice.

Andrew Schorr:
I understand that it has been shown to provide greater relief of symptoms with fewer side effects than a number of other treatments.

Dr. Ostrem:
Yes, that would be true for the lesional-type therapies. You have to think of every patient as an individual, but the nice thing about the deep brain stimulation is that it also allows for treatment for symptoms on both sides of the brain without as many problems. Traditionally a lesion-type therapy or pallidotomy, where a small area is destroyed in the brain in the pallidum or globus pallidus, then it is not as safe to do both sides of the brain leading to more problems with cognitive decline or speech problems.
Andrew Schorr:
At UCSF you have had a lot of experience with DBS.

Dr. Ostrem:
Yes, we do many surgeries a year here. We are one of the largest referral centers on the west coast for deep brain stimulation.

New and Exciting Treatments

Andrew Schorr:
That’s great. So where are we headed. I know there has been some work in gene therapy. What’s coming up next, if you will?

Dr. Ostrem:
There are a lot of exciting potential surgical treatments for Parkinson’s disease coming down the road. Just in the area of deep brain stimulation we’ll be seeing other companies besides the leading company right now, Medtronic, which makes the current only FDA-approved device for deep brain stimulation, we are going to be seeing other companies come on the market and try to compete, and so we’ll hopefully see better systems coming to the market, including rechargeable batteries and smaller systems, and that will be good for patients.

We are also optimistic that gene therapy approaches for Parkinson’s disease will also be something that patients in the future can look forward to. The main problem we have right now with Parkinson’s disease is that we have no therapies that help to slow the progression of the disease definitively or reverse the damage that has already occurred within the brain.

We have lots of treatments for symptoms of Parkinson’s disease but nothing that actually alters the course of the disease. So gene therapy offers the potential to alter the course of the disease, and that’s why we are very excited about the opportunity for gene therapy to play in the future for Parkinson’s treatment.

Andrew Schorr:
Doctor so I understand that of course if there is a great benefit, potentially for both sides of the brain with placing the deep brain stimulating, but you want to put it exactly where you need it. How at UCSF are you using MRI now for the brain mapping to know exactly where you need to go?

Dr. Ostrem:
That’s a great question. Traditionally the DBS electrodes have been placed using a stereotactactic head frame where your head is secured to the bed, and you are not able to move your head at all. The neurosurgeons use your MRI, which is taken before surgery, to map out exactly where they would like to place the electrode.
Then during surgery they use what is called microelectrode recording where they actually, physically listen to the sound of the cells as they are penetrating through the brain to the desired location. They can tell based on the cellular firing where they are in the brain, and this helps to identify exactly where they are in the brain and confirm what they saw on the MRI. This information helps to know that the lead is placed correctly.

There is a newer way in which we are approaching placing these DBS electrodes and that is using real-time MRI. This procedure has several advantages in that patients can be completely asleep for this procedure itself; they are under general anesthesia; and MRI images are taken of the brain as the electrode is being placed within the specific nuclei of the brain that is desired. So there is no need for microelectrode recordings. The procedure can be done much more quickly, and we have real-time feedback of exactly where the lead is going into the brain. We are very optimistic that this is going to be a more comfortable approach for patients to undergo this type of procedure as well as a little faster surgery for them to go through.

Andrew Schorr:
Dr. Ostrem you must be excited about some of the ground you and your team have paved there at UCSF because it sounds like related to deep brain stimulation and also now new ways to place these devices, you’ve made a lot of progress.

Dr. Ostrem:
Yes, I’m very proud of our team. We’ve been doing this type of work now for many years, and we feel very strongly about participating in clinical trials to bring better options for Parkinson’s patients in the future. We are very busy, and we will I’m sure be even busier in the future as more approaches to treating Parkinson’s disease surgically become possible. We hope to be a part of that.

Andrew Schorr:
Right, well I’m sure you will be. You mentioned clinical trials for Parkinson’s at UCSF. I wanted to give a number if our listeners are interested in participating in a research study which could be tomorrow’s approach today in Parkinson’s, please call this number, (415) 476-9276.

Andrew Schorr:
We’ve covered a lot of ground doctor. I know there is always more to talk about Parkinson’s, but I’m sure UCSF will be part of it. I hope we can have you back. Thank you for sharing the surgical approaches now and particularly the ground you’ve been paving with deep brain stimulation.

Dr. Ostrem:
Sure, it’s been my pleasure.
Andrew Schorr:
We have been visiting with Dr. Jill Ostrem who is a neurologist and Assistant Professor of Neurology at UCSF and a specialist in surgical approaches now that are making significant advances.

Of course, for more information about the physicians and services at UCSF just call the Physician Referral Service, and that number is 888-689-UCSF (888-689-8273). Thank you for joining us for our Patient Power program sponsored by UCSF Medical Center. I’m Andrew Schorr. We’ll see you next time.

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