

Rough Edited Copy

Cochlear Americas  
CA-CAN Chapter Meeting  
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>>: Good morning welcome everyone. We have broken the record for the number of people here.

We are happy to have you here. My name is Sister June and I am one of the leaders.

We have Brian and we have Deb over here that is a leader and Mary Jo is a leader.

We have several leaders.

We are going to -- instead of going around the room like normally, I will ask a few questions. How many have a cochlear implant already?

How many are thinking about getting one?

A couple, okay.

How many of you experience dizziness or Tinnitus. What we will do is have the presentation first and doctor Stevens will give his presentation and entertain questions and after that you can ask questions that you have about the implants. If you want to stay longer than two hours some will stay and converse and share our experiences and what we have learned along the way.

You should also know, what Molly, she is our wonderful transcriber. It will be sent to you if you put your e-mail address out there, we can show the whole transcript and will be sent to you and you can read it if you missed something in the presentation.

Doctor Stevens is an ENT doctor I presume. He can tell you what his fellow is. He is with Dr. Samy. He brought his lovely family with him. We have his son and wife. I think you have another son at home --

>>: Two more.

>>: He is a family man and tries to keep his family engaged in his life.

Doctor Stevens: Nice to meet everyone. Is this an appropriate level to talk for everyone. If I need to talk loud he will let me know. If I need to speak up tell me.

>>: You may be blocking the transcriber.

>>: Sister June said I am a fellow in a specialty called Neurotology. I am a special type of ear nose and throat --

>>: Can you talk a little louder.

>>: I am a special type of surgeon that deals with tumors on the brain stem.

Dr. Samy and I do cochlear implants and that is why we were asked to talk. Dr. Samy wanted to apologize, he cannot be here today he is conducting an interview as we speak. Normally he loves to come to these things. He is a great man.

I am his fellow. That means I am doing two years of additional training on top of my residency training which was five years itself. That has become super specialized in what we do and I learn from Dr. Samy on a daily basis and we do surgeries together. If you haven't met me, I have met a few of you now. I will meet you again in the near future at some point.

They asked me to come, Sister June and talk today about dizziness or the feeling of dizziness associated with cochlear implant surgery. That is relevant to everyone here I think.

We want to launch into that. Dizziness at least as we think about it as doctors is an experience, a feeling. Whereas a symptom, like a fever or bleeding from a cut on your arm, those are symptoms, physical attributes, dizziness is a tough thing to wrap your mind around for doctors and patients because it is your personal experience. No one else can feel that except for you and no one can actually mesh it in any way.

That is the basis of the talk, we will go over key parts of the anatomy of the inner ear. It is relevant to know especially if you are going into a cochlear implant surgery when you are going to have done to you and how the surgery itself can lead to dizziness and how the implant works and how the dizziness hopefully will eventually resolve.

I want to talk a little more about what is dizziness? It can be a lot of things to a lot of

people. Spending a little time to go over that.

Also, how does that relate to the surgeries.

I wanted to wrap up speaking about the patient experience. I think that is the most important thing to you all. Allow folks to describe the experience they had and also how they overcame it and what they did to treat it or if they needed to do anything to treat it and so on and so forth.

Can everyone hear me okay at this level? I can talk louder if we need to.

This slide depicts the anatomy of the inner ear.

If you look over to the right. That is the organ of hearing called the cochlea. That is where the implant goes.

Over to the left is the organ of balance. There are multiple parts to that.

I have another slide that circles some of that. The organ of balance is called the vestibular labyrinth and there are five parts to that. There is one on each side of the head. You have two cochleas. One in each ear. It is connected to the brain through a special nerve that runs through the bone and to the brain stem. That is how the signals get from the ear and processed and sent to the brain and that is what you interpret as sound and speech.

When I talk to you now, this area is the beginning of the receptor, it is like a microphone that sends a signal to your brain and your brain interprets that and that is the computer that tells you what you are hearing.

The problem when you have -- need a cochlear implant is the cochlea is damaged.

That can be for multiple reasons. Due to age, due to lots of sound and noise exposure at a high level. That can be due to medications that you've had in the past. It can be due to different diseases like Meniere's Disease. Anyone have that? That is a problem when you have dizziness before you ever had the cochlear implant. Put that

away for a second.

Anyone in here born with hearing loss or developed it very young. Quite a few.

The star at the bottom is the point of entry where we actually surgically put the implant in. This is just a cartoon, but that illustrates that it goes in right between the cochlea, the organ of hearing and vestibular labyrinth. The organ of balance. You can see how close they are together, a foreign object going into one can directly affect the other.

That is one reason the folks that get cochlear implants get dizziness.

For the folks that haven't had an implant yet. I want to introduce you to the elements of it so you can get a feel for what you might see.

Those that had it this maybe old hat. If you met with audiologist you will have learned the different pieces and seen what they look like and hold them and see how tiny these components are. I wanted to introduce this to introduce the concepts of why we get dizziness related to the surgery.

First there is an external part of the cochlear implant and internal part of the cochlear implant. The external part, if you don't have one look at someone that does have one, it is the device that sits on the ear and is attached to a small magnet. The device on the ear has a microphone that picks up sound. There is a computer inside the body housing that translates that to a signal and the signal goes back to the part with the magnet.

The way that works is it is actually a radio antennae, just like on your car. It transmits a signal in radio frequency that is picked up by the internal portion of the cochlear implant.

That is the part you can't see.

If you take everything on the outside off, you would see maybe a bump there and that is it.

The internal part has an antennae that receives a radio signal from the external part. It

transforms that into electricity that goes down the very small electrode array and into the cochlea. That is our job to put that there and put it there safely.

To give you an idea of the relative sizes of everything. The electrode array is about maybe an inch long. That is it. That takes up about two-thirds of the internal portion of the cochlea. It goes in and wraps about one and a half to two turns up into the cochlea depending on the size.

I am not going to go into specific details but there are three manufactures in the world of cochlear implants. One is in Australia. That is the cochlea company. One out of Austria this is Medal company. And out of United States is advanced Bionics.

>>: This is for cochlear recipients.

>>: The cochlear devices come in quite a few shapes and sizes. The electrode array, the part that goes into the cochlea can be rigid, soft, it can have a hard or soft tip. It can be curved or straight. There are different thoughts from surgeons around the world that certain arrays do better for certain types of people.

Dr. Samy is a world expert on that type of implantation, using different device shapes to match your specific type and reason for hearing loss.

Here are some pictures. The picture on the left is a cartoon that shows the internal part only. You can see the electrode goes through the area of the bone, we drill that out during surgery. It goes into the middle ear space and tiny opening that we create, we insert the implant in the cochlea and it wraps up in there and we are done and we close everything over the top.

On the right, that is the actual size. Anyone holding or wearing one in the room you can see. It fits into the palm of your hand and the internal device is on the left and external device on the right.

This I through in to give an idea of the relative size of the instrumentation and the

implant itself.

You can see the scale up there, I am sorry if it is too small to read. The actual implant length is about one inch long. It is a little longer than two centimeters. In terms of width it is under one millimeter, 4, 100's of an inch.

The cochlea that is about the size a chick pea or eraser there. Despite the implant tiny, the organ it goes into is also tiny and it takes up a good amount of space in there and that is relevant when we talk about dizziness and the reason we develop it.

This is the same cartoon we showed before. The star is the implant point. There is a small membrane thinner than a human hair, it is about 20 cell layers thick. That is thin. We put a small hole in that and we put the cochlear implant in and it wraps up in the direction of the red arrow into the cochlea.

The problem is, when you put in the device that is about half the width of the inside of the cochlea into the cochlea, the cochlea itself is filled with fluid. Anyone that sat in a bathtub, you know your body displaces that fluid and makes it overflow. The same thing with the cochlear implant. There is nowhere for the fluid to go. It as well as and pushes on the organ of balance. You can see that with the yellow arrows there. That is one of the reasons that people get dizziness, it stimulates the organ of balance directly. Now remember, this is before the cochlear implant is ever turned on. There is no electricity, it is just the mechanical presence of the cochlear implant in the inner ear.

Over the first week after surgery, remember that this is also a foreign body, has anyone had stitches before in your skin? Show of hands? Did you notice when you had stitches was there crusting or redness that spread around that? That is because it is a foreign body in your tissue. Your immune system doesn't like anything foreign being in there. The nice thing and beautiful thing about these devices is they are built with a

special kind of plastic that your body doesn't recognize as foreign. But any foreign object in there causes your body to become inflammatory like a cold in a sense. That reaction in itself can cause dizziness. Those are some causes we associate with dizziness after the implant surgery. With that as a basis let's launch into what is dizziness.

Dizziness as we did I fine in med sin is subjective experience. You sense it and you are the only person that can sense or describe that feeling. It is a feeling that is caused by some disruption of signals throughout your body and there are a couple types that can cause dizziness, not just the inner ear. We will go through that. That is important especially for people that suffer from dizziness or vertigo before.

The good thing is dizziness as a sensation a short lived after cochlear implantation.

That is contrasted with the element of light headedness. That is a sensation that your head is floating or fluffy headed.

Anyone felt light headed. You stand up quick and see stars essentially. This is can be caused by anesthesia and a lot of people misinterpret this as dizziness when in fact it is something completely else. We will go into that in a second.

Vertigo is a medical diagnosis. Dizziness is your experience like pain is your experience, vertigo is an actual symptom we can detect and mesh. Vertigo is where the room is spinning. Anyone that suffers from Meniere's Disease knows very well that is a terrible sensation. After cochlear implant surgery this is uncommon. So much so that when we encounter it doctors gets concerned about it. That is good news. If you are getting a cochlear implant this is about the worse you can have most people don't have problems with that.

Folks with Meniere's Disease getting cochlear surgery. You are in a different boat.

The good news is the implant doesn't trigger vertigo. By that stage of getting the



implant it should be gone.

One picture that is the best way to paint the way our body and system does balance is a stool with three ways.

There are three inputs that go to your brain and tell your body where you are in space.

When you stand up the reason you don't fall is you are getting information from your eyes telling your brain where you are in space. You are getting information from your inner ears, the part relevant to us. You are getting information from nerves in your limbs, hands and feet as you touch a table or feet on the floor. All of that information is processed in your brain, that you can think of as at seat of the stool. That tells your muscles what to do so you can stay upright so you don't fall over.

When you are doing complex actions like walking, driving, the reason you don't fall over then is the complex interaction of all of this information.

You can see as with a stool if you kick out a leg on the three legged stool you fall over.

After surgery, any surgery in general, the anesthetic medication you get that makes you fall asleep and not remember the procedure, also has a temporary effect on your brain's ability to process information and balance. That will cause you to have some dizziness and also some nausea afterwards. How many people felt nausea after your cochlear implant? The medications you receive or perhaps are already taking can cause dizziness symptoms so that clouds the picture a little bit.

In terms of vision, vision loss by itself due to age, I have it since I was about ten years old, can cause problems with your ability to process information. That can cause dizziness. Folks as we get older and have Glaucoma and other things that can cause issues. Especially if you kick out another leg under the stool. If you are inner ear is bothered by the cochlear implant prior vision lost too.

Also with your limbs if you have diabetes, especially if poorly controlled and causes

problems with nerves in hands and feet, that can cause issues in feeling where you are in space and could cause problems with dizziness.

The most important thing to everyone after that boring part of the talk is what do you experience as a patient.

The good news is the dizziness is the primary complaint. Not vertigo. When it happens at least from reports and I cannot speak from experience, it is short lived. At least the worst of the symptoms. It is gone or nearly gone within a few weeks. Would most people that received the implant in this room agree with that? At the end we will have discussion for you all to talk about your experience having the implant and if you had dizziness what was your experience with it. It is different for everyone.

We know it happens to a significant degree that people report it and about 30 or 40% of cases. That is 3 or 4 out of ten. If you pick maybe eight people in this room, you might really have symptoms afterwards.

After talking to the audiologist Lisa, and Theresa, have you met them? Awesome women. They will be add indicates for you from start to finish. Lisa and Theresa told me and I asked them this question, this number is right. They get about half of their patients complain of dizziness at some point. But luckily that is usually gone by the first activation date, that is usually 7 to 10 days down the road. That is good news it is not long lived.

Like I said before, if you get symptoms that are more like vertigo where the world is spinning and things are really off balances in your perception of things, this is more concerning, we take a closer look as doctors then.

Dizziness while unpleasant if you get it, is something that will go away. We say wait it out and you will feel better in about 7 to 10 days and that usually holds true.

How many folks got a cochlear implant in here with intent to preserve some hearing

they still had?

That is a new type of procedure that we are doing for concern patients that weren't traditionally candidates for cochlear implants before.

That means most folks that get cochlear implants have almost no functional hearing, folks preserving have some left and we are trying to save what is left.

If you had an intent to preserve hearing and you start to get dizziness or vertigo or hearing changes, that more than anything else something we want you to call into the office for immediately.

Folks getting regular cochlear implants not as important. You can take that for what it is.

I through it up there mainly to confuse everyone and look at the dry and boring stuff that I read. This is what we write as doctors about this subject.

This was a very recent article published in an ear nose and throat journal. It was written by a guy down at Louisiana State. They were looking at dizziness, subjective and what we the doctors can measure and trying to see if we can relate those two things. Despite all the fancy test we have we can't test for this. That is what this paper says. There were 15 others like it over the last ten years.

What has means is the damage done when you put in the cochlear implant is not permanent. Nothing to measure. It doesn't mean you are not feeling the symptoms. We put the emphasis on what you are feeling, it doesn't matter what we can measure but this is where we don't test. The test are useless and don't show us anything.

What do we do if you have the dizziness? This is the part you care the most about.

The biggest thing is stay active especially the older you are. The balance sent, are built on activity. Inactivity just like if you don't use a muscle for a time starts to atrophy and becomes weak. The same with balance center. If after surgery you stay in bed it

is hard to get out of it.

If you can walk around the house and try to remain as active as possible, the recovery is much quicker and complete. That is across the board. We tell everyone this.

The other things I strongly recommend is if you have symptoms of dizziness or vertigo, don't take unless they are so severe, medication that suppress that symptom. Many doctors not ENT symptoms will say take Antivert, Valium or Xanax, these sedate you and turn off your inner ear. Not only are you not recovering you are shutting off the system. While make symptoms better they can prolong the recovery, we strongly recommend to avoid these unless you have to. Anyone that has had Meniere's Disease knows probably about some of these medications.

Another thing when you have the cochlear surgery, pain is part of the experience.

Luckily for most the pain is pretty well controlled. That being said there is pain so we give medication for that. The medication can also suppress your balance system and that can cause issues in terms of recovery from the dizziness. We say take pain medication as needed and don't take it for no reason and try to wean yourself off it as soon as you can. Luckily most are off pain medication about a week to ten days? .

Most people say that is true?

If you have vertigo or dizziness that is persistent, that means lasting longer than 1 to 2 weeks. That is when you are brought back to the doctor's attention. The doctors after the implant is placed we don't have a lot of input now. It is in the audiologist, they will bring you back to our attention if you have these symptoms and we will order testing. The only way we can test the function of the balance center is to look at the eyes. They sit you in a chair and move you around and move you in space and all of these funny things. Anyone who ever had this knows it is terrible but it is doable and it does give us information.

The reason it works is the inner ear is connected through a series of nerves that from the brain stem out to the eyes. They are so closely connected when one is affected it manifests that. The way you see that is when you focus on something.

If you look at the clock and you turn your head but keep your eyes set on that clock.

The reason it doesn't shift and you can read it while you are moving your head is because the inner ear is giving immediate fast signals to brain and eyes and saying you focus that image on my retina and I don't want it to move. It is a mechanism we can keep things locked on no matter how fast or sharply we are moving around. That is why we don't crash all the time while driving a car. Thank goodness.

This is a test and we are looking for inner ear damage that would maybe respond to additional therapy. Antibiotics or steroids. I won't launch into that. We have not had to do it the entire time I have been here that I am aware of and hopefully to no one else. But it is worthwhile knowing what is out there.

In conclusion, remember the general anatomy, the implant goes between organ of hearing and balance and it does cause problems with dizziness. Usually from the pressure effect of the implant going in. It can cause microscopic damage but nothing permanent over time.

If you have it, it is short lived, it can be treated and usually the best things to do are avoid the medications that make it worse and stay as active as you can tolerate and get off pain medication as quickly as you can.

The advocates will be the audiologist, the point people. The doctors are standby and back up, if there is an issue they feel is more concerning in nature. Luckily most of the time that is not the case.

I think that is a good time, this is the end of the talk. To open to patient experience.

Maybe Sister June, if you want to talk about your experience.

>>: I had no dizziness.

>>: Who had dizziness in the room? Show of hands? That is good, we must be good surgeons then.

Would anyone like to talk about your experience.

>>: It is kind of unusual for me, I was dizzy on the right side and on the left side I wasn't. I was dizzy ten days on the right side. Going into the surgery I was overcoming a sinus infection, that may have contributed to that. It took me about ten days to get rid of it totally but each day it seemed to get less and less. I had to take off work for about 5 or 6 days until that went away because I wasn't safe driving. On the other side it was fine I didn't have it at all.

>>: You have hybrids?

>>: I have hybrids.

>>: I had my surgery in August and I actually experienced all three types of dizziness and vertigo. But I suffered from inner, they know don't if it is Meniere's or migraines, I have suffered with that for almost 20 years. After my surgery the first couple days I was fine and then I don't know if it was the swelling and fluid, I started getting balance and dizziness. About a week into that is when I had some very severe vertigo bouts. They think what happened is the stress from the surgery triggered by migraines and my migraines manifest in terms of severe vertigo. Once we got that under control it was all pretty much involved in about a week and a half to two weeks. They had to post phone my activation until they could get everything under control. Once I was activated I then experienced dizziness and balance again issues with sound input. The way we dealt with that is they put me on, besides the audio therapy we did I had walking therapy combined with audio therapy. I had to walk with stimulating the implant. I couldn't do that without help. My friends, family and neighbors took turns walking me up and down

the street while I did this.

>>: It was really funny for the neighbors.

>>: Most of my neighbors thought I was on a two weekend bender because I was staggering up and down the street. At that point I didn't have vertigo but I would try to walk. They said therapy, walking walking walking. I did that religiously every day. It got better every day. I went into the audiologist and they turned off two electrodes, once they shut down and walking -- everything was back to normal and haven't had anything since.

They really do work with you. I went in for activation and one week post-op and the doctors came in and we resolved some things, they did give me some medication for vertigo and vomiting was so severe. It was probably because of pre-existing conditions aggravated from the surgery and after that, the audiologist worked with me. The entire team got involved and they were fantastic and I have no problems at all.

>>: I would say what she experienced is one of the cases I was talking about that is a more severe cases. I remember hearing about your case, Dr. Samy was called directly. We were giving direct advice on what to do on that one. Luckily, God bless you, it is about as bad as it gets.

>>: Her life, if something is rare or fluke she will find a way to come down with it. It may seem in sensitive but that is her coping.

>>: Someone not here e-mailed me questions under the projector.

>>: We have someone here with a Baha so if you can address that.

>>: Absolutely.

>>: I have motion sickness on a ship and sometimes flying and on a passenger car, does that mean I have a high probability suffering from it post-surgery?

Motion sickness in and of itself is different than vertigo or dizziness. It is a type of

dizziness I guess you can say. Motion sickness is a miss interpretation of those symbols. Remember the three legged school analogy. Your brain is interpreting what is coming from your eyes, limbs, inner ears, out of sync. It thinks it is moving more than what it is seeing. Does that make sense? When you experience that is on an amusement park ride. Your feet and arms are telling you you are firmly planted in place and that the seat you are moving in isn't going anywhere, your body isn't in motion and not trying to move. Your inner ear is saying you are moving all over the place. Your eyes, depending on what they are seeing, who knows what they are telling you. Space mountain at Disney, it is a roller coaster in the dark. So the sensation, your inner ears are telling you you are moving. Your body or limbs are telling you you are seated and your eyes not telling you anything because it is dark.

In terms of increasing your risk of dizziness after CI? Not specifically. It is more interpretation in different signals. A person in that boat, I would recommend do the same things we talked about. Stay active, keep walking and doing things around the house. Try to avoid things that kick the legs out from under the stool. The medication that affect the inner ear.

>>: I suffered from motion sickness all my life. It subsided and I have been able to control it. The past 2 or 3 years it got worse. If I drove I was fine, riding, we would go five minutes and I would have to stop the car. I just had the second implant in August and the motion sickness is practically gone. It is really weird. My daughter says shall I drive and I say yes, let's give it a try. I am going to Disney next month I will wear the patch.

>>: I would like to say I put the implant in myself so I must be a miracle. (Laughter) Anyone that had cochlear implants on both sides know in the immediate post-operative period you can have worse dizziness. The audiologist will warn you about that. They



will say you may be off for about a week.

>>: I had it about a week on the left. Especially if I move fast, Dr. Samy's remark was move slow.

>>: Wise advice. What was probably happening there is when you are implanted on both sides it does shut down maybe a certain percentage both inner ears. But both are shut down to the same degree. Now that both sides are off and now the same, it may help your symptoms, it sounds backwards but we see that happen.

Not saying that everyone that has dizziness go get a second one. That may help you but for different reasons.

This is really about hearing and restoring hearing, dizziness is a minor thing.

>>: Years ago -- fluid on the inner ear, I was told to watch my sodium. I do have a swimming sensation, light headed sensation I still have from time to time. I have a question about high blood pressure medicine, do they cause dizziness or impact the dizziness.

>>: For anyone that couldn't hear, she was saying she has Meniere's Disease where the pressure in the inner ear is higher to begin with and she is already prone to dizziness and vertigo. There are medications and dietary changes that you can do to mitigate those symptoms. She asked certain types of medication, blood pressure or fluid medications affect that? The answer is yes. The medications you take can directly influence all the legs of the stool to some degree. Will we tell you to stop taking them -- usually the reason you are taking them is so important or if you stop the symptoms would be worse than what you are experiencing.

Especially for Meniere's if you watch the salt, keep that up. If you are on blood pressure medication, don't change it, it is worse to change it or come off it. The blood pressure can go up or way down. Over time when you are out from surgery a little we

can mess with that stuff. We don't want to change too many things at once.

>>: I got my second implant in April. I had dizziness with the first one. It was strange and I think you related to more the way it was. You just feel like you are drunk. It seems like since the second implant I don't have any of that, it is all cleared up. The first time it was just kind of on and off, it really want that bad.

>>: That is great. That is two people in a row where if you had issues you get the second implant and it equals the ear, the signals from each side because the same.

>>: I want to go back to motion sickness. She has always suffered from motion sickness, there are gadgets, acupuncture. There is a spot in the wrist -- it is pulses of electricity on the wrist. There is a website called Gromit that sells new inventions and there are cool bands they are selling.

>>: I think from a doctor, I am a doctor of allopathic medicine. That is or whole patient -- we are western medicine and have to prove everything. There is a lot more traditional remedies from that side. Our stance on that is if it works and not an illicit drug we are all for it. It works for some people. If you have a good experience, that is the value of a group like this is sharing that with each other is a great value to you. You may pick up on tricks and tips that even away may not know. Even with all the reading and training that we do.

>>: I have a comment, I was implanted in November and I don't recall any dizziness of any magnitude. Maybe a little disoriented if I moved too quickly from one side or the other in the kitchen.

>>: One ear or both ears?

>>: One.

>>: I have two questions, is it common to have both ears implanted? A lot of people sound like they had both?

>>: How many people have two?

How many people have one?

>>: I had 2, 1 in 1998 and the other in 2013. I am a good representative for CI.

Anyone in here that is thinking about having it, have it done. How many people in here have one that are sorry they have it? There you go.

How many people that have a hearing implant in here are sorry they have it? No hands went up.

>>: He is thinking about it but --

>>: We will win him over with our charming personalities.

>>: This guys a used car salesman.

>>: Let's answer the first question first, that was a great question.

The answer is we do both side implants, we prefer that as surgeons because we are doing more surgery and we like that. Also there is pretty good evidence that results are better having implants on both sides. That doesn't fit every person.

>>: At the same time?

>>: Not at the same time. At the first few stages, there was evidence that those people did good but it is a longer surgery and tougher on the body. Now we space them out. Most people would be you got one and some number of years or possibly months later in some cases you get the second one.

There is evidence to show you start to approach certain sounds better. Specifically complex sounds like music, children's voices. If my five-year old was talking to you you might appreciate the complexity of his voice, things like that.

We don't implant everyone on both sides and there are reasons that doesn't occur.

The main is financial. Insurance companies will often times not cover the second implant. Why? We don't know. They feel it is superfluous and if you have one that is

good.

The second reason is not everyone has enough hearing loss in the other ear to warrant getting another implant. Those would be the folks we do implants for hearing preservation. We are trying to help them for the part they have lost completely but they have some normal hearing to a degree.

With that in place it is important we don't do a cook book procedure for everyone. We try to tailor it to everyone's specific type of hearing loss.

One of the things I love about watching Dr. Samy do surgery and doing it with him. He tailors the device he puts in based on the type of hearing loss you have, how long you've had the hearing loss and why you have the hearing loss in the first place. We think that probably gives you the best chance afterwards for the best possible result. Just using, with the cochlear company, there are a wide variety of different devices we can put in. We select them personally for you. We really try to make an effort so each patient gets the right device for their specific situation.

>>: Does that affect how they are mapped?

>>: He asked does the electrode type change how the device is mapped? What that means, the mapping occurs after you have the implant. The timing, you have the device placed and some number of weeks -- we do it early, some wait a month. They go in and turn on the device and for the first time electrical signals go down to the inner ear. That is the instance where you see the videos on You Tube where it is a person crying because they are hearing sound for the first time in years, maybe ever in some cases.

After that you go to a series of appointments with audiologist and they are spaced at frequent intervals in the beginning and lengthen out with each one. You go within a couple weeks of the first visit and they fine tune it, that is called programming. They

are changing the amount of power that goes to the individual little electrode arrays throughout the device.

In so doing they can stimulate the areas of your inner ear that need the information the most. Need the signal the most. Not all areas are as badly damaged at different points. They can also turn off electrodes that are causing problems, making you dizzy or more common make your face twitch. What they do for that is switch the electricity bands off. The device works fine and the symptoms go away forever.

>>: For those thinking about an implant, one thing that is kind of amazing is how incredible our brains are. When it is first turned on it is so loud. In two weeks you want it louder because the brain has adapted. The brain is very adaptable to the sound. That is something people need to be aware of. That is why you go back to programming because the brain is adapting quickly.

>>: To answer the rest of your question, the answer is, it does influence how we map the electrodes depending on the type we put in, only in the instance where we use the very short electrode arrays for hearing preservation purposes. The at this point array is about 24, maybe 22 millimeters long. About two centimeters or roughly the thickness of your thumbnail.

The hearing preservation electrodes are about half that length, you get half the number, give or take, electro coils or electrodes that make it out to the cochlea. If you turn off one of those it impacts you more profoundly than the other arrays with greater number of points that impact the cochlea. The answer is yes, kind of, like everything in medicine.

>>: I was implanted in November and I have a problem of echoing is the best I can describe it. It sort of obliterates understanding speech. It sort of over shadows what I hear. I am wondering how long that last?

>>: Could that be electrode related?

>>: Could you repeat that to me?

>>: I don't know what you mean?

>>: You said an echo effect?

>>: That is the best I can explain it. It is louder and over shadows what I can hear. I feel like if that would go away I could you understand speech a little bit.

>>: A lot of factors that go into that. Without being able to see the testing that has been done for you I don't know if I can answer that question.

The echo effect is not uncommon at least by what is described to me. The echo effect is you are hearing the signal and also hearing the speech coming through your ear.

You may be getting signal from your God given hearing and your cochlear implant at the same time and they may not be quite jiving.

>>: Mapping too?

>>: I think there are ways to work through that. Bring it up at your visit.

>>: Should I continue to wear the hearing aid in the good ear?

>>: I would recommend that. She asked if she should wear the hearing aid and implant --

>>: They tell us know during training.

>>: During training yes. But in the long run it is good to have stimulation on both sides binaural, stimulation on both sides.

>>: Could it be because of mapping, too strong of a sound?

>>: Possibly.

>>: That would make it like an echo type thing.

>>: Great point. The audiologist will work with you and try to find a balancing point.

Where you are happy with the signal from the cochlear implant and hearing aid. They

may tweak one or may take away one and just go with the implant.

>>: Is the mapping controlling the different electrodes?

>>: Yes.

>>: I wish I could get the mapping -- get a hold of that. That is the hardest part for me. Sometimes when you are listening for that sound, all of a sudden you think you are hearing it and I have trouble really knowing when I am actually hearing it. That is a lot to do with what you are hearing, voices and music. I went to seven different churches before I could find one I could hear in.

>>: Great point. Music is one of the most difficult things to hear. I have time for four more questions and we have to take off. Our other two boys are at a friend's house and they are nice enough to watch them for us.

>>: In my case, I had no issues with vertigo or dizziness prior to implantation, also no issues with either of those during recovery. After about two years after implantation and bilateral, suddenly I had an instance of vertigo for a couple days. It went away completely. Then another 3 or 4 months later I had another episode. It is not chronic but it pops up every 3 or 4 months.

>>: I had the same thing.

>>: Luckily dizziness that arises that far out is rare. Vertigo too. When it is that far out we start to think it is not so much the implant affecting that. Obviously we don't discount that but we look for other things that cause dizziness. BPPV, Meniere's Disease, Labryinthitis.

You can get weeks of vertigo, thank goodness most people don't encounter that. If we encounter it we treat it. If we encounter what you experience we try to get to the bottom of that or if it is self-limited or episodic which means happens every so often.

>>: Change of season?

>>: Potentially. You and you and then we have to wrap it up.

>>: In reference to the echoing she was having, I have the old implant about 30 years and I had a little bit of echoing. Worked with the audiologist to remove that. You should probably tell your audiologist about that.

>>: I just want to say, people that had Meniere's Disease there is a definite difference between dizziness and vertigo. Vertigo is the room goes around and you throw up and you move and throw up again. That is vertigo and that is Meniere's Disease. It is a definite difference between that and a little bit of dizziness when you stand up or move to fast or something like that.

>>: Thankfully most people don't get that sensation of vertigo that can be terrible.

>>: I am glad to listen to the presentation and understand the differences. I now know vertigo is what I am experiencing but not often. It goes on a year and happens every once in a while and doesn't last long. Should I keep a log?

>>: I think so. Next time you have an appointment with Dr. Samy or any ENT. Say I have these episodic vertigo episodes. They will ask you more questions about how long each episode last and details like that. One over here and then that will be the last one.

>>: He just had his turned on, can you go through the training process he should be involved in to get it working right.

>>: Sure. Actually do one of you want to talk about that. The training and initial activation and training --

>>: After he leaves we can address that.

>>: That is a key questions. Surgery is a one-time event. The activation is a process and a lot of work goes into it.

>>: I had a question about the Baha --



>>: I can answer the audiology questions after you wrap up.

>>: I have a question about Yvonne's echo, I would like to ask you in your opinion do you think the brain's natural ability will filter out a little echo over time?

>>: Yes. What he was saying is the brain over time, he was questioning does the brain have the ability to start to filter and process those sounds differently. Again, not having ever had one I don't know, because that is everyone's individual experience but from talking to most people the answer is yes. Your brain does have the ability to adapt over time. I think when you first get your implant activated, the second they turn on the power, you are hearing but it is like a Donald Duck. That adapts over time. The brain starts to recognize the little subtleness to the noise you didn't notice before. Is that accurate? Hopefully that helps but yes the brain is able to adapt to implant experience, also a hearing aid too -- she mentioned they have you hold off in the initial training phases from using the hearing aid because it can make it harder to program the cochlear implant.

>>: This is a personal program, when you finish your fellow ship are you going to stay in the area?

>>: You can ask my wife that? With really love it here, we are looking to stay. I have approached the department about maybe getting a permanent position here, we will see if that is in the cards or not. That is outside of my control. We like it. These guys do a good job. This is my five-year old and we have a three-year old and one year old and they are thriving here and we love it. That is him and the three-year old dressed up for Star Wars. Let's talk about the Baha and then we will wrap it up. What was the question about the Baha, what can we do for you?

>>: Are there any side effects to the Baha system?

>>: That is a great question. At this meeting most folks don't have a Baha. That

stands for bone anchored hearing aid. It is different rather than going into the inner ear it is placed into the bone. When it vibrates it works like a hearing aid. Instead of the ear canal, it vibrates the bone of your skull and that makes you hear. It is amazing technology. The reason we use those are multi fold. One of the classic reasons is for people that can't wear a traditional hearing aid or it just wouldn't be effective for them for whatever reason.

For those people, we typically, Dr. Samy does implantable post Baha. It is a metal piece, you implant that into the skull behind the ear below the hat line. It is just outside the outer part of the ear so when you put this part on it is not touching anything.

The question is are there complications associated with that? The answer is yes, like any procedure we do there are always complications that could occur. Luckily that is one of the most uncomplicated procedures we do in ENT. The bad news is with Baha it is constant work for the rest of your life. Because the metal post is there you can have reactions or skin growth around that area.

The thing we worry about as surgeon is the skin growing over the top and cover it.

That is the most thing we are worried about.

The secondary thing we are worried about to a lesser degree is it gets infected where it inserts into the bone. We rarely see that. To be honest I have never seen a case myself. That is a concern but to a much lesser degree.

The third thing is making sure that people wear the device. A lot of times they will get the implant but never actually put it on.

Cochlear implant users is such an investment of time and effort and programming and money that most people will wear the device once they get it. I think few I have seen won't wear it and they only won't wear it if it causes pain or symptoms that are adverse. That almost never happens.

The Baha is such an easy procedure, it is same day surgery, you go home. It takes about 45 minutes to do. You can be awake sedate while you get it. The investment is less. The insurance companies cover it completely. The way it works is once it is healed you pop on the device and it is like putting on a hearing aid. People are less prone to wearing the devices because they forget or there wasn't as much invested in it. That would be the biggest thing I would stress is take good care of that site and wear the device and use it as much as you can. That is where you get the benefit.

>>: The attract is a little more extensive.

>>: There are two types of Baha, there is one mostly implant, similar to cochlear implant by the fact it is a magnet that has the hearing part associated -- if you take off the magnet you don't see anything. We don't do a lot of that at UC. They are specific for limited amounts of hearing loss or folks that are young in a profession that you can't have something out there all the time. Construction worker wouldn't want something banging at the post, we might consider it then. We don't do that surgery very often but it is more involved.

>>: He was radiated when he was 5 or 6 -- it has created the hearing.

>>: The radiation, that is probably one of the reasons you were selected for Baha. It does cause issues when you are that young and growth and all of that. It is an excellent system and it will work great and you will appreciate the benefits of it. There will be no difference in complications rates even with the prior radiation history.

Problems that we see infection is brittle diabetics or recently had radiation or a cancer in that area. Luckily that is not the case with you and I think you will do just fine.

Thank you everyone. I am sorry I couldn't stay longer. I love coming. I learn as much from you guys, hopefully you learn something from me.

(Applause)

I can send of the presentation to Brian and Sister June.

>>: Hello. There are people that are new and want information. Some of us will stay and answer some questions. If some want to leave, that is fine also. But we want to be sure we answer your questions about programming and questions that you may have. I know you have a question about what he needs to do to learn to listen.

>>: You need to practice.

>>: I just received my hook up about a month ago. I am hearing the Donald Duck. How long will it take before I hear you?

>>: How much are you practicing? Are you listening to audio books, radio, do you take the hearing aid out and make yourself practice.

>>: I practice at least two hours a day. I take my hearing aid out.

>>: How are you practicing?

>>: Watch the news -- I can't hear anything, when I take the hearing aid out I can't hear, I can watch the lips.

>>: Do you have an N six? When did you get your implant? Did you get a mini mic or phone clip or any accessories?

>>: I got a suit case full of stuff. I have not sorted it out yet?

>>: Do you have one of these?

>>: Yes.

>>: You have questions?

>>: I have a lot of questions

(Multiple conversations)

Laurel: If anyone has any audiology questions I will be available to talk with you.

(Multiple conversations)