

Conversations in Tinnitus

With Bob DiSogra, PhD

Topic: Tinnitus and Ototoxicity

Transcription:

- S1 00:00 Welcome to *Conversations in Tinnitus*, a podcast of the American Tinnitus Association. The American Tinnitus Association is a nonprofit organization dedicated to research, advocacy, education, and support for people who live with tinnitus. Conversations in Tinnitus podcasts are an extension of ATA's magazine Tinnitus Today. The only publication dedicated to educating the public and practitioners about ongoing research, treatments, and management of the condition.
- S1 00:48 [music] And welcome to another episode of *Conversations in Tinnitus*. Joining us once again for this episode is audiologist Dr. Bob DiSogra. He's coming back for a second round with us. He just didn't get quite enough the first time. But we are talking this time about ototoxicity and that's a big topic. But to finish the introduction here, Dr. DiSogra is an audiology consultant from Millstone, New Jersey, as well as adjunct faculty at Kean University in New Jersey. And he is a frequent lecturer on pharmacology and ototoxicity and can be found at drbobdisogra.com.
- S1 01:26 Ototoxicity is basically having a substance in your body, which is toxic to the ear and that can affect hearing, it can cause tinnitus, or it can make tinnitus worse, and it can also affect balance function because those things are all functions of the ear. So, ototoxicity can be caused by a number of different drugs that are taken pretty commonly, including some pain medications. Antibiotics actually specifically the salicylates. Some anti-inflammatory drugs. Loop diuretics are a big one. Quinine, quinine derivatives are known to be ototoxic as well. And one of the nastier drugs are some of the chemotherapy agents, especially those that are platinum-based. And so those are all ototoxic drugs and things that if you are going to be prescribed one of those, you definitely should have that conversation with your physician about the potential effects.
- S1 02:42 And if you do sense a change in hearing, if you do sense a change in tinnitus or onset of tinnitus, or even a change in your balance function and have some vertigo or dizziness, then you need to return to your physician, and follow-up with them and let them know about that. And sometimes it may be that the change in medication is not possible because sometimes you're treating something that's life-threatening and that's more important. But at least have the conversation. We encourage everyone to have that conversation with your physician when you suspect that you might have an ototoxic effect. So, you've done a lot of work Bob in this area on ototoxic medication, and some of that has included tinnitus as a side effect of some of these drugs, and not all ototoxic drugs cause tinnitus. Some are stronger on the vestibular or balance side, some are stronger with hearing loss. What are the particular ones that you found are more prone to causing tinnitus?
- S2 03:44 Hi, John. Thanks for having me back again. And the platinum-based drugs that you talked about, the chemotherapy-based drugs, they're going to be more hearing loss related as a side effect rather than tinnitus. And again, as my good friend and our colleague Dr. Kathy Campbell had suggested that the benefits of the drug far outweigh that side effect. And again, now you have a counseling issue going on here. The larger group of medications that could be ototoxic whether it be hearing,

cochlear toxic as we say, or vestibular toxic, or both would be your aminoglycoside family of antibiotics. There is an entire published list of antibiotics and whether or not they are cochlear toxic, vestibular toxic, or both. And whether or not they're even reversible. Some medications take longer to clear out of the body, so the effect could occur later on. There could be a late onset of these side effects. Others occur more immediately.

S2 05:04

So again, it's a matter of having that conversation with the primary care-- or the doctor who is prescribing the medication, whether it's a specialist like an otologist or an oncologist to say, "Okay. What are my side effects?" And again, the docs are going to know the major side effects. I mean side effects show up in clinical trials. The incidence figures could be very low. There could be maybe 1 in 500 people during the clinical trials for this drug that developed tinnitus, but they have to report it. Okay. So there are some really good resources for information, and I guess do you want to get into that right now where the resources are for information? Because clearly, your primary resource is going to be your pharmacist. Okay. They're going to be the prescribing pharmacist. And gosh, this is an allied profession of ours that has a wealth of information about the medications and their side effects. And also whether or not there are any drug interactions that might cause tinnitus or other problems. And they have their resources also.

S2 06:19

There is a lot of information on the Internet. And John, we've had this conversation before that we know that just because there is drug information on the Internet doesn't necessarily mean it's accurate. And so there are several websites that I've used that I have found to be reliable and I'd like to give you two websites if I can. Now, that's not an endorsement by me. It's not an endorsement I'm sure by the American Tinnitus Association. But two websites that I have found to be quite useful and easy to navigate through with a lot of good information is a website that's www.drugs.com. And the other one is www.rxlist.com, R-X-L-I-S-T, rxlist.com. These two websites although they're commercial websites, they do have an advisory board and they will update their information on a regular basis, which is great. So, you're not getting five-year-old information. And you can reach out to them. You can ask them questions and they will respond back to you. So those are just two websites right now. The Food and Drug Administration, FDA.gov, is another site. But I have found that site to be really time consuming to get through, okay. However, these two sites here are quite reliable.

S2 07:44

So, if you're looking for information about your drugs number one, talk to your pharmacist, okay. And have a conversation. You may have to go there and have the conversation too. This is what they're trained to do, okay. And then if you are going to go online, take a look at some more of the reliable websites. And in my opinion, the two websites that I gave you – the drugs.com and rxlist.com – are two very reliable websites that are updated regularly. They get their information from the Food and Drug Administration anyway and also from the drug manufacturer. And then I also forgot a third one and that is the drug manufacturer themselves. The Food and Drug Administration requires that all these pharmaceutical manufacturers maintain records for a period of 10 years after FDA approval. So, if there are any inquiries that come in after FDA approval about a new side effect that never showed up in the clinical trials, then they have to report that to the pharmaceutical company. And the pharmaceutical company by law requires them to give that back to the FDA so they can update the information for the consumer. It's quite a tight process and it's very effective. It's very effective.

S1 09:01

How have you found that tinnitus usually presents or changes when someone is taking a medication, which has that risk of affecting tinnitus or causing tinnitus?

- S2 09:13 Some medications have almost an immediate onset. Within 10, 15 minutes after a pill is taken. If it's an injectable, it's going to be faster. But for the most part, most people prefer an oral medication rather than an injectable. And so, I would probably say within 20 minutes if you notice that there's noises going on in your ear. It doesn't have to be a ringing sound. It could be anything, anything that just doesn't sound right from humming, clicking, like an old steam radiator hissing sounds. The auditory system is a one-way system. In other words, nobody can hear what you hear. I can't put my ear next to a patient's ear and hear their tinnitus, okay? Because that's generated internally and the sound only goes up to the brain. So, we understand that, okay? We can't hear that for you, but we understand the generators of tinnitus.
- S2 10:14 And what happens that when you take the medication, like some medications, right off the bat, boom. Within 15 minutes the ear starts to make some noises. Sometimes there can be a delayed onset. But the point is that your ears should not ring, okay? Or make any noises at all. That's it. That's your first red flag. The thing that a lot of people just don't do, they don't piece it together. They don't put the timeline together for when the medication started, or when a dosage was added or increased, or a new medication was started in conjunction with another medication that you may be dealing with this a combined effect, which could be the noises going on in your ear.
- S2 10:56 So, this is where the pharmacist becomes your best friend here, okay. And this is where putting a timeline together, okay. I started this medication on Monday, my ears starting ringing on Wednesday, and every time I take the medication in the morning my ears ring for three hours but it goes away in the afternoon. Hello? Okay. This is something that is a very easy timeline to put together, but yet a lot of people don't do that. And there are many times you've had patients come in for tinnitus evaluations, and it turns out that it's a side effect of their cardiac meds or another situation once you put that timeline together. So that's the work that has to be done by our colleagues to help manage the patients who try to establish a cause. And as we said in other conversations that we've had is that the tinnitus is a complaint to the patient, but it's a symptom to us so we have to find out why.
- S1 11:46 And if this does happen, this is something that we probably should be keeping track of and reporting, yeah?
- S2 11:54 Oh, absolutely. Documentation is key to everything here because I mean I've had situations where I've had a physician send a patient to me because of tinnitus. And it turned out that with doing the timelines and doing the history, the drug history, and talking to the pharmacist, that it turns out that the patient's tinnitus was actually a side effect of the medication that the patient had just started. The patient never made the correlation to the fact that my ears ring only in the morning and so on. So I contacted the primary care doctor and I told them that it's my opinion that the tinnitus is probably a side effect and it was a heart med. And the doc said to me, he goes, "Gee, I didn't know that." I said, "Okay. That's great." And he said to me, he goes, "Bob, thanks. I learned something today." Well, two weeks later the doctor's father is now in my office as a patient because of tinnitus. So I mean there's always some spinoff here. There's always education that's going on. And it is a patient by patient basis. And again, your ears should not ring. And if you can tie it into a medication event, then that's even better. And if you're not sure, then you just contact the pharmacist. I'll contact the pharmacist for you. I have a need to know. I'm not violating any HIPAA regulations. I have a need to know. I'm a professional and I'm looking to establish a cause. So, I'll make the phone call right there in the office for the patient. Just tell me the name of your pharmacy.

- S3 13:23 And really what we want to kind of reinforce is it's a team effort. There is specialties that have their strengths in this process. But if the patient comes to me as the audiologist, you need to be flexible enough to contact the primary physician to be confident enough to contact other medical professionals to get to the bottom of the causation, and to also to apply our knowledge and our expertise and put our two cents in for the general well-being of the patient.
- S2 13:54 Dean, you're absolutely right. There's no question about it. The audiologist has to feel comfortable in doing this. And in our training, I remember years ago being told that well, you tell the patient to tell the doctor to explain the-- We'll send the report, but in the meantime, you contact the patient. You tell the doctor what we talked about. And we turned it back to an 85-year-old patient that didn't remember half the stuff you talked about when you walk out the door. And it's like, jeez. So, you have to take it to the next level, and the audiologist is going to have to make those phone calls. And it's okay to make those phone calls because you have a need to know. And again, fortunately in our doctoral training programs now, we're seeing more and more universities with pharmacology programs. And there's putting more emphasis on this aspect of patient management which is exciting for me. I think it's great.
- S1 14:50 And you mentioned a little bit ago, a couple minutes ago, some of the let's call them easier tinnitus side effects of taking ototoxic drugs. It's pretty easy to identify when it's real closely time linked to administration of the drug. But somebody's going to have a longer-term effect too, and they may need to be taking some of these over time before something like this emerges. And it can be a little bit more difficult to nail down and relate to a specific ototoxic drug, which of course is why it's important to know what the ototoxic drugs are so that you know if that's on the table or not obviously. But they can present in many different ways and they can affect different people differently. So you and your friend might be going through the exact same thing and it affects one, doesn't affect the other for genetic factors, whatever reason it might be. What we used to call your constitution [laughter]. Right?
- S2 15:49 Yeah. Well, now we call it pharmacodynamics and pharmacogenetics, okay? So--
- S3 15:55 [inaudible].
- S1 15:54 I liked it better when we called it a person's constitution.
- S2 15:58 That's easier too. Yeah, but now we get into these multi-syllable words that can become confusing. But yeah, the patient's response to the medication can vary because of their age. If they're older, it's more difficult, if they're younger it could be sooner. What they're predisposed to genetically. What other medications they're taking. What other conditions, what other body systems are being managed with other pharmaceuticals. So, it's a combination of things going on. But the red flag is that when all of a sudden something new happens, like your ears are ringing, okay. Try and establish that timeline. Try and establish that point of which the medication started. And sometimes some of these side effects include memory impairment, confusion. So, you can't really rely on the patient to give you that direct answer, or even a family member that might not live with the patient but might be knowledgeable. But they might not be totally aware of those states. Again, it goes back to what I said earlier. This is your best friend because they're going to have that information right there, and gosh, this is an allied health profession that our own profession of audiology needs to get friendlier with.
- S1 17:15 Mm-hmm.
- S3 17:16 Absolutely.

- S1 17:17 Well, and we need to have those conversations. We're talking a lot about tinnitus being caused by ototoxic drugs. But if you have tinnitus, and you might want to be at least passably familiar with the kind of medications that might make it worse. And that doesn't mean you won't take it, but it's a way to start the conversation. It might mean you don't take it. There may be something else available and you can have that conversation with your physician. Or it may be that it's really important to take this specific drug, and you just simply need to be then monitoring the condition and see whether it changes.
- S2 17:51 Patient compliance with medication is probably the number one problem that pharmacists face and that audiologists face. You take a look at our patients Dean, John that we fit with our hearing aids. What's the big decision that we have with them? It's this following the recommended pattern of when to wear the hearing aids, how [inaudible] batteries. It's patient compliance, all right. Parallel that to what the pharmacist goes through because if you notice at every pharmacy there's always a small little section, do you want to consult with the pharmacist about your medications and so on. And most of the time there's dust on those chairs [laughter] because people are embarrassed. You're embarrassed to tell-- I mean the pharmacist knows what the medications are for, but you just might be embarrassed to put that out there. And some patients withhold information. So it really becomes a challenge at that point to work with these patients but counseling becomes so important in the management. Again, the medication has the benefit and the tradeoff just might be the tinnitus. But again, we can manage that, okay. If the medication is doing its job for the other medical issue that you have.
- S1 19:09 Well, and that's where the monitoring comes in as well. Sometimes we just want to monitor this. Sometimes that's the role of the audiologist in this whole thing is if the physician knows they're prescribing something that may have an effect on the hearing system whether it be hearing loss and/or tinnitus, then we just want to monitor that. And we do have methods to do that through high frequency audiometry, through something called otoacoustic emissions, which measures the function of the outer hair cells. There are tools that we have which can pick up on any damage very early so that then we can address that if necessary, and--
- S2 19:44 There are known medications that will cause hearing loss and tinnitus. And even the pharmaceutical manufacturer recommends that a baseline hearing test be established within 24 hours after the drug is administered. And this is mostly your heavier duty drugs, your chemotherapy drugs and the like. For the most part, most antibiotics you're not going to see a baseline audiogram for an antibiotic. I rarely have seen that in my practice because the antibiotics are dispensed so frequently that you'd have a waiting list for the testing. So, it's unfortunate that you have to wait till the problem emerges before you get into the office. But at least they're in the office, and that's the important thing, okay? You'd like to get them sooner, but the testing again, you mentioned various types of tests that are out there. And these are very effective tests/objective tests, and they can be the indicators of other changes in hearing that might not show up right away, but the tinnitus might be the presenting symptom. So, the audiologist has a lot of tools that they can work with. We just got to get the patient to be aware that the audiologist as your trained professional is going to do all this type of stuff.
- S1 21:06 Yeah. And there are some resources out there as you've mentioned. You mentioned a couple websites where you can look up drugs, look up side effects and such. You did some additional research on something called the Side Effect Resource database, and you mentioned that in your article in *Tinnitus Today*, which is in publication right now. And it's interesting because coming from the standpoint of a provider, we see something like where you write there's a total 996 drugs with combined side effects

that total 4,192 just in this area. And of these, 6.5% listed tinnitus as a reported side effect of some way, shape, or form. Of course, at the same time, when you know a little bit about how this process works in reporting the kind of phase four of an FDA drug approval process, you also have to take into account the fact that tinnitus is one of the most common conditions out there, and what's always being reported is not cause and effect necessarily, it's simply correlation. And so how we view this data sometimes can be important. But it lets us know that this is very prevalent and it's something we should be looking for.

S2 22:23

The other thing too is John is we have to take a look at the age of the patient. We know hearing decreases as a function of age, and we know that when patients get into their 70s and 80s, they're going to have some measurable hearing loss and tinnitus may be a side effect of that. But concurrently, they may develop type II diabetes let's say, and all of a sudden now you're dealing with the diabetes medications that maybe have tinnitus as a side effect. So again, this is what we call our differential diagnosis, or playing detective, in trying to piece this all together to establish the cause. And I think that what the American Tinnitus Association is doing is remarkable work in putting wonderful information out there for the layperson, for the non-audiology reader to learn more about this and to make an informed decision. And that's all you really-- what we're doing here is we're-- we have knowledge. We know a lot of things. This is 2018, okay? And we have resources out there. It's a matter of just picking the right resources, working with the right professional and getting the guidance that you need.

S2 23:32

And the ATA's publication has great readership and there's some really wonderful articles, and I've learned some stuff from the articles that I've read in there. And again, we're helping people make informed decisions, that's all. We can't force it on them, okay? We're not going to put a gun to their head and just say, "Hey. These are your options and here's the plus side, the downside." We know a lot, so you have to kind of put your trust in the professional that you're working with that they're going to help you make an informed decision. And that's what we're trying to do on our end. The American Tinnitus Association is doing that on their end and that's great. And everybody's working together, and we hope that the consumer benefits in the long run as far as their understanding and knowledge of the problem.

S1 24:19

Yeah. That's why I think the bottom line message here, let's see if you agree, is given that most of our listeners are going to be people with tinnitus, not people who think they might get tinnitus because that's our population, that's our membership. If you do have tinnitus, you might want to go to this article, Bob's article in the *Tinnitus Today* and just have a passing familiarity with those kinds of medications which may have an effect. And if you at least generally know what they are, then if you have a condition and your physician is maybe looking at prescribing one of these, then you can right then and there open that conversation and ask, "Okay, Dr. Smith. I have tinnitus. I think I read that these kind of drugs may sometimes affect tinnitus. What do you think?" And at least then initiate that conversation.

S2 25:11

Yup. And they can take the article with them and show them the article. That's even better [laughter]. Oh, and I have no problem with them photocopying the article and putting it in the waiting room. It's information, it's in the public domain. It's there to help the patients to ask better questions, and to ask questions that the physician is going to be able to hopefully guide them towards something that's going to be effective in the management. Now again, we may not cure it, okay. And the "C" word is wonderful if we can cure it. Like I said, it'd be the lead story on the evening news. But right now, it's that we can manage it. And management comes in all different forms, and some of it's something you can take orally, some of it you might have to wear electronically, others helping you to sleep. You're also looking at mindfulness

therapy. There's a variety of different ways in which it can be managed. There's not a magic pill. It's not an overnight thing. And again, my tinnitus lasted for four days after that concert, and boy, it scared the heck out of me. And like I said, it went away, but boy, it just sensitized me more than ever before about living with it and I'd lived with it for just four days. I can only imagine what it's like when you're living with it 24/7. You can't sleep at night, or it just interferes with just watching a movie or watching a sporting event, or just having a conversation at dinner with your family.

S1 26:40

And so I would just want to wrap up and thank you for joining us here today for this *Conversation in Tinnitus*.

S2 26:45

Oh, I appreciate that. And there's some really wonderful information that's out there, usable information. We're starting to see more patients that are diabetic, that are recognizing hearing loss at a young age that might be prediabetic. I think you're familiar with The Audiology Project, John, that is looking to have audiologists now be part of the Centers for Disease Control list of recommended professionals for diabetes patients to get to know because we know about hearing loss and diabetes. And there's more people with diabetes and hearing loss. So the medications that they might be taking could be tinnitus related, there might be fall risk, it could be hearing loss related side effects. So there's lots of good information out there. And so just we want to help people make a right decision and an informed decision, ask the right questions, and go to the websites for resources that are reliable, that have information that is current, and that can be used in their management. So, I just appreciate the opportunity one more time to be part of the podcast and thanks for having me on board. Dean, thanks very much too.

S3 27:59

Yeah. No problem.

S1 27:59

All right. Thanks for joining us. We've been talking with Dr. Bob DiSogra who is an audiology consultant from Millstone, New Jersey, and adjunct faculty at Kean University in New Jersey, as well as a frequent lecturer and frequent podcast guest on this podcast. But a frequent lecturer in pharmacology and ototoxicity. And, so, I'm John Coverstone along with Dean Flyger, and thanks again Bob DiSogra for joining us and we'll talk to you next time on *Conversations in Tinnitus*.

S2 28:28

Thank you.

S1 28:47

The American Tinnitus Association is a nonprofit organization dedicated to research, advocacy, education, and support for people who live with tinnitus. Gifts and donations to ATA are used to support research for a cure and other critical missions described on our website at www.ata.org.