

Parkinson's Disease: An Update
Webcast
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Cindy Zadikoff, M.D.

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Parkinson's disease affects about one million people in North America alone. This disease is a slowly progressive neurodegenerative condition that results in slowness and stiffness and can impair a person's ability to carry out tasks independently. Unfortunately there is still no cure for Parkinson's disease and much of the treatment focuses on alleviating the symptoms with oral medications. Dr. Zadikoff discusses the various stages of Parkinson's disease as well as the different treatment options for patients affected by this disease.

Not all of the symptoms of Parkinson's are movement related, there are often non motor symptoms as well. About 40 percent of patients with Parkinson's disease have depression and many have trouble with speech. Learn more about dopamine, it's effect on the body and those with Parkinson's. At Northwestern Memorial Hospital, the physicians and experts on staff take a team approach to treatment. Movement disorder specialists, such as Dr. Zadikoff, physical therapists and speech therapists all work together to provide the best care for patients living with Parkinson's.

There is currently no cure for Parkinson's disease but many medications that slow the progression of the disease. Dr. Zadikoff discusses the current treatments, such as levodopa, that reduce the symptoms. She also speaks about the current research in finding new and better drugs to increase the quality of life for those living with Parkinson's. Hear about the tremendous progress being made as scientists across the nation collaborate to find a cure for this neurodegenerative disease.

INTRODUCTION

Andrew:

Hello. This is Andrew Schorr. Welcome once again to one of our Patient Power programs on healthnet.nmh.org. This is where every two weeks we have a new program with an expert from Northwestern discussing a serious health concern. Today we're going to talk about Parkinson's disease, a serious movement disorder, and with us is an expert in the field, neurologist Dr. Cindy Zadikoff, who's an assistant professor of neurology at Northwestern.

Dr. Zadikoff, thanks for being with us.

Dr. Zadikoff:

Thanks for having me.

Andrew:

So help us understand the prevalence of Parkinson's and just what is Parkinson's.

Dr. Zadikoff:

Parkinson's disease fits into one of the category of diseases that we refer to generally as a neurodegenerative condition. And what that means is essentially that there's an area of the brain that degenerates, and it continues to do so, and up until this point we don't know exactly why it happens, what sets the whole process off.

In terms of how common is it, we say that about a million patients in North America are affected, and certainly age is a risk factor. As for prevalence, meaning the number of people at any point in time who are affected over about the age of 60 or, it's about three percent

Andrew:

And rarely, but it can happen in children as well, correct?

Dr. Zadikoff:

Yes. That's called juvenile Parkinson's, but really that's a very uncommon form. So the large majority of people are older. The mean age of onset is about mid 60s. About five to ten percent of patients who have Parkinson's disease have young onset disease. In most cases we refer to that as being about less than 40 years of age. Less than 20 years of age is called juvenile onset, and that's a much, much less common form of the disease.

SYMPTOMS OF PARKINSON'S DISEASE

Andrew:

What are the typical symptoms?

Dr. Zadikoff:

So when we talk about Parkinson's disease there are a number of symptoms and signs that the patient comes to us and tells us about and that we look for when we examine the patient. So one of the most common features is what we call a resting tremor. And by that we mean somebody notices a tremor, usually it starts in the upper extremities--so in a hand, but it can be in a foot, it can be in the chin--and this tremor is mainly present when the patient isn't using the limb. So they're sitting watching TV or when they start walking their hand will shake. Then when they go to use that arm the hand stops shaking. So in general it tends not to be something that's very functionally limiting because it is a resting tremor, but that's one of the cardinal features. And usually it's asymmetric in onset, so it starts on one side and then it progresses to the other side.

Having said that, just because you don't have a resting tremor it doesn't mean you can't have Parkinson's disease. But certainly if that sign is there it is very helpful for a physician in making the diagnosis.

The other things that you can see is what we call rigidity or stiffness, and there's also something called bradykinesia or slowness of movement. So people often come to us and say, Well, I'm weak. I'm getting weaker. In fact, it's not that the muscles are weak. When we actually test the muscles they're very strong. However the movements are very slow and sort of ratchety. And so imagine if you're trying to open a jar, if you can't get a nice full turn you'll have difficulty opening that jar. It's not because the muscle is weak. It's just because you're having difficulty making that nice movement. So the things we talk about then are tremor, this rigidity or stiffness and bradykinesia or slowness.

One other feature that we commonly see is what we call postural instability, which tends to be a balance problem, but this is not typically an early sign that we see in Parkinson's disease, and it can be seen in other things as well.

Andrew:

Are people in any sort of pain with Parkinson's?

Dr. Zadikoff:

You know pain is actually a very interesting question with Parkinson's disease because we do recognize that some patients do have pain associated with it. It's actually not uncommon, for instance, for a person before they're diagnosed to end up going to see an orthopedist or their family doctor or rheumatologist because their shoulder will hurt, and they think they've got something wrong with the joint. In fact what's happening is that that joint is stiff and not moving, and that can result in pain.

THE EFFECTS OF DOPAMINE

Andrew:

What's going on in the brain? I understand the bad actor in this is dopamine. Maybe you can help us understand what that is. And also I understand even with Parkinson's and these other symptoms you mention can be depression.

Dr. Zadikoff:

Yes. So to address the first, the dopamine, there's an area in the brain, deep in the brain, called the substantia nigra. And that area makes a chemical called dopamine. And dopamine then talks to other cells and tells them what to do. And, again, for reasons that we don't understand those cells that make the dopamine start to degenerate. And so that's where a lot of the problems come because the pathways that that chemical is involved in are the pathways that mediate movement, and so that's why we see many of the signs that is we see.

We now recognize as well that there are probably other chemicals that are involved as well. So before we used to talk only about what we called the motor symptoms of Parkinson's disease, movement and things like that. Now we recognize that there are nonmotor symptoms. So one of those would be depression. Other things you can see are things like sleeping problems, urinary frequency, constipation, a multitude of other things that we call nonmotor symptoms. And some of that's probably because it's not just the dopamine that gets affected but there are other chemicals that can be affected as well.

In terms of depression, depression is actually very, very common in Parkinson's disease. About 40 percent of patients with Parkinson's disease do have depression. And it's higher in Parkinson's disease than you see in other illnesses of the chronic type. So when you compare patients who have other chronic illnesses to those with Parkinson's disease there is a much higher incidence of depression in Parkinson's.

And, again, part of that is a reactive thing. Right, it's understandable. You've now got a disease. It's affecting the way you can do things. You're allowed to be depressed. But it goes beyond that, and part of that is that the chemicals that are involved, one of them being dopamine, is affected, and that's why there is a higher instance.

Andrew:

Now, is Parkinson's always progressive? And if it is always progressive how do you look at Patient A or Patient B and know how rapidly it will progress?

Dr. Zadikoff:

Yes. Parkinson's disease by its definition is a progressive disorder. It's a neurodegenerative condition, so it does continue to progress. It progresses very slowly, so we always tell patients with Parkinson's disease if something happens overnight or you snap your fingers and the next thing there's been an acute change, that's not Parkinson's disease. Something is going on, and we need to look for that something else. It is quite variable, the rate of change from person to person, but in general it does change slowly over months or years as opposed to weeks or days.

TREATMENT FOR PARKINSON'S DISEASE

Andrew:

Dr. Zadikoff, let's talk about treatment then. Do we have medications to cure Parkinson's? I think the answer is no. And if that is right then what do we have that can slow the progression or improve the quality of life even if it is progressing?

Dr. Zadikoff:

So when we talk about neuroprotection we're talking about things that are going to slow or stop the course or reverse the course of disease. Some people might have heard the terms neuromodulation. We bounce all of these terms around because it's hard to figure out exactly how do we measure whether we've actually stopped or slowed the progression of this disease.

The quick answer is that right now we do not have anything that cures the disease or that slows the progression of the disease or reverses the progression. So there are no neuroprotective therapies out there. Many things have been studied. Many things continue to be studied, but at this point in time there is nothing that does that.

What we do have is drugs that can act as very good symptomatic therapy that really can improve quality of life. One of the analogy that I often give my patients is think about if you had a strep throat infection. And if your throat hurt and I gave you a throat lozenge, your throat stops hurting but I've done nothing to stop the infection. I've not given you an antibiotic to cure that infection. Well, in Parkinson's disease we don't have an antibiotic. What we do have is great throat lozenges, and so those are the kinds of medications that we have.

Andrew:

Now, when you talk about great throat lozenges or drugs to deal with the symptoms, have they been improving these drugs so they're easier to take, you take them less often, you don't have to take a huge handful of pills? Where are we with the tools that you have when it comes to drug therapy?

Dr. Zadikoff:

So there's a lot of research going on in that arena as well. So the main drug, the drug that the majority of patients with Parkinson's disease will ultimately be on is a drug called levodopa/carbidopa or carbidopa/levodopa. And levodopa is the active ingredient. Levodopa goes into the brain and gets converted into dopamine, which is the chemical that we've talked about that is missing. It's the oldest of the drugs we have. It's the cheapest of the drugs we have, and it still is the best and the most potent drug we have.

The problem with levodopa is that it does have a short half-life, which means that initially in the disease process a patient may only have to take the drug a few times a day and they look at the clock to tell them that it's time to take their medications. As the disease progresses, however, no longer is it the clock. It's the patient's symptoms that say it's time to take the drug, and unfortunately that window gets shorter and shorter. So patients may have to take their drugs five or six or seven times a day.

There are some other drugs that have longer half lives and are often used before levodopa and then sometimes in conjunction with levodopa, either with an entirely different mechanism of action, so for example a class of drugs called dopamine agonists. Many people might have heard of them, they are things known as Mirapex or pramipexole, ropinirole or Requip, and now a newer one called rotigotine or Neupro, which is a patch, which we can talk about. And then again there are other drugs which actually makes the levodopa hang around a little bit longer. But, unfortunately, we still aren't there yet to the point where a person especially with advanced disease can only take a drug once or twice a day and be okay.

CURRENT RESEARCH

Andrew:

Where are you with research? I know it goes on at Northwestern and other leading academic medical institutions. Where do you think we're headed? Because while these are good tools that you have, and we'll talk about the multidisciplinary approach that you have to help people in all aspects of their lives, where are you with really trying to find a way to stop what's going on in the brain?

Dr. Zadikoff:

Well, there's a ton of research going on looking at that. And, again, as I said, there's a lot of research going on into gene therapy trials, into other drugs that might actually slow or halt of progression of the disease. And obviously it's one of the questions we get asked very, very frequently. The research is very, very exciting in this field, but it all has to be taken with some cautionary hope. Most the studies that are available are either animal data--and there still is a difference between us and the animals--and also a lot of the studies that have been done are what we call open label studies. And so what that means is both the physician and the patient knows the sort of treatment that they're getting. And we know by a lot of experience that there's a very strong placebo effect, meaning people want something to work, and so if you want it you kind of believe it.

Once we've proven that these therapies are safe to use then we can go on to study if they're actually effective. And to study if they're effective they actually need to be what we call double-blind placebo-controlled trials so that neither you nor I know what treatment you're getting and that way you can really judge, without bias, whether the treatment is working or not.

Andrew:

Dr. Zadikoff, so let's talk about what you're doing there at Northwestern. So, first of all, you specialize in movement disorders and especially Parkinson's, and you have a team there that works. Why is the team approach so important for people with Parkinson's?

Dr. Zadikoff:

The team approach is really important for a number of different reasons. One of the main reasons is because we know that Parkinson's disease isn't just a movement disorder, and just throwing a bunch of medications isn't going to solve all the problems. So we need multiple different ways to attack the same thing.

So, for example, speech in Parkinson's disease can get worse over time. Patients often complain that their voice gets softer, it's much more difficult to understand them. Unfortunately, it's something that doesn't tend to respond to the medications all that well, and so we need something else. And that something else is speech therapy. And there's a particular form of speech therapy called the Lee Silverman therapy that tends to work better in Parkinson's disease patients. And so we work with speech therapists.

Also there are things that over time stop responding as well to medications. So I mentioned very early on that one of the signs of Parkinson's disease was balance problems or postural instability. Again, that comes later but that can lead to a lot of morbidity because it can lead to falling. It can make it very difficult for a person to ambulate independently. And, again, over time this tends not to respond as well to our medications. But just because we can't treat it by medications doesn't mean we shouldn't try to do something about it. And so oftentimes that means working with our physical therapists, to teach patients walking cues and other things to help them be safer and allow them to ambulate independently for longer.

One other example is depression. And there's the need of the Parkinson's patients, there's the need of the caregiver. And so social work is a very important aspect. We don't have the time in our clinic with the physician to address all of those other issues, but they're just as important, and they can really affect a person's quality of life and their family's quality of life, and so it's important that somehow that need get met. So we have a social worker who works with patients and helps them make sure that they are getting all of their needs met, if they need home makers, etc., that we can find that and help them with that.

LISTENER QUESTIONS

Andrew:

That's terrific what you're offering there. Here's some questions that we got in, and we'll pepper them in as we continue our discussion. So Sherry from Chicago wanted to know, "What are some alternative therapies, not prescription medication, that can help with the symptoms of Parkinson's." She had wondered whether massage might be helpful as well.

Dr. Zadikoff:

Unfortunately, you know, as physicians we always like to see very rigorous trials to address whether something works or not, because by nature we're a bit skeptical,

which is a good thing I think. When it comes to the alternative therapies there's not a lot of good literature out there to say do these things really work or not. In general, these things probably help a little bit, not a lot, and the benefit doesn't last for very long. So with the massage therapy you might feel good for a little bit of time after you've had the therapy, but it's certainly not something that's going to last you days or weeks.

I don't have a problem with any of those alternative treatments, and there was one survey actually which showed I think up to 20 to 40 percent of patients with Parkinson's disease at one time or another had tried alternative therapies. So doctors need to live in the real world, realize their patients are doing it, allow the patients to come to them and talk to them about it so they can have an open discussion.

But one thing I would caution people is all of these therapies should be used in conjunction with medications. They will not replace the medications at all. Unfortunately, again, it is a degenerative disease. You do need the medications to help you. If the other things help a little bit, that's great. But there's nothing tried or true. The only thing is exercise therapy has time and time again shown to definitely benefit people and certainly not just from a Parkinson's patient's standpoint but from a general health standpoint.

Andrew:

Right. And I know there's a department that deals with integrated medicine at Northwestern, and there's discussion of things like yoga and tai chi that can help people do movement as well.

Here's an e-mail question we got from Atlanta from John, and he has a question I'm sure you get asked all the time. He said, "Can you tell me more about deep brain stimulation therapy? What are the benefits and who is a candidate?"

Dr. Zadikoff:

Deep brain stimulation -there is nothing magical about the name. It is called this because the area of the brain that we target is deep in the brain. And what it consists of is putting little electrodes into--usually it's done on both sides of-- the brain. Most often it's in the area called the subthalamic nucleus, or STN. Sometimes it's also put into another a little area of the brain called the globus pallidus, or GPI. And then that little electrode is connected with a wire under the skin to what looks like pacemakers that are placed in the chest. So if anyone has ever seen a pacemaker, that's sort of what it looks like.

By that device we can give electricity or electrical current to the brain. It's not exactly clear how it works, but it works and it works very well. And we've been doing this for quite a long time now, so it's not considered experimental anymore. It really is part of our care for patients when the time comes. The question is when

does that time come. In general, when there are complications with medications. The medications never stop working. So that's a myth. Some people think, Well, I should save my medications because what if I need it later.

The medications don't stop working, but what does happen is that complications arise from taking the medications and from having the disease. So you need both factors. And when that happens it becomes a bit more difficult for us to manage the medications and to really solve all the problems. And it's at that stage that we start to consider deep brain stimulation. So usually it's after a person has had the disease for a number of years. There are some studies looking at whether it's better to do this a little bit earlier, but right now for the most part we wait until people are starting to have some complications related to the medication. So that's mainly who is a candidate.

The other thing that we always do is what's called the Sinemet study, because we know that what the deep brain stimulation does is it helps improve all the symptoms that the drugs can improve. But again sometimes there are complications from these drugs. So what happens is you have the surgery, you can then reduce your medications, and by doing that a patient can have a much smoother, better response throughout the day without all those fluctuations that patients with Parkinson's disease well know of that make it very difficult to function. And what it then allows you to do is by decreasing the medication you can also get rid of some of those complications like dyskinesias, or abnormal, involuntary movements.

Andrew:

Dr. Zadikoff, so given what you're doing at Northwestern for someone around Chicago or even beyond that, is it worth having a consultation with you and your department to make sure even if they live at a distance that all that's available or even might be actively being studied in Parkinson's is considered in their case now. Because if they go to a community neurologist that neurologist has a lot on their plate, MS, maybe epilepsy, maybe Alzheimer's, many different conditions, is it worth checking in with you these days with whatever's going on in Parkinson's?

Dr. Zadikoff:

I think for a few different reasons it is worth it. There's certainly some wonderful community neurologists out there who do deal with the disease and handle Parkinson's disease very well. Most community neurologists are not performing deep brain stimulation or involved in the program because really you need a center that does it. We have our multidisciplinary Parkinson's team, and we have a whole multidisciplinary team that deals just with the neurosurgical aspect because there are separate needs for that. So most community neurologists aren't going to feasibly be able to do that. So I think it is very important to speak to your neurologist, find out about these things, see if it's worth coming to see us.

The other thing is that oftentimes in these academic centers such as ours we are involved in a lot of clinical trials which the community neurologist may not know about, and it can be of great benefit to patients to be able to participate in some of these trials or hear about some of them. And so I think for that reason it's also important for patients to kind of touch base with us and see what's happening at these sorts of centers.

LIFE EXPECTANCY FOR PARKINSON'S DISEASE

Andrew:

My understanding is the life expectancy for someone with Parkinson's has been increasing. What's contributed to that, and where do you think we're headed?

Dr. Zadikoff:

There still is a lower life expectancy than normal, but, yes, the introduction of levodopa in the treatment of Parkinson's disease really revolutionized the life of patients with Parkinson's disease. Because before ultimately the dopamine degenerated and people couldn't move. And related to that you would have swallowing problems, and so if you have swallowing problems you can what we call aspirate where things go down the wrong pipe and you can get a pneumonia. You can fall, break your hip, hit your head and all of those sort of complications that really do reduce somebody's life span. So the introduction of levodopa and then some of the other medication that have come after that have really, really improved the quality of life in patients with Parkinson's disease.

What we need to do now, though, and what we talk about a lot now in the movement disorders community is what we call move beyond dopamine. As I've sort of mentioned through this there's all these other symptoms that sometimes stop responding to the medication or don't respond to the medication and aren't entirely movement related. And that's probably because, again, more than just dopamine is involved. And so now what we need to do, now that we've gotten people moving better, is we need to now really address all these other symptoms that can really impact quality of life in a person. And so that's where a lot of us are looking to move future research towards – beyond dopamine.

Andrew:

One of the things when someone is diagnosed in a family the family wonders, Well, what brought it on, and is there a genetic connection that we should worry about for others in the family?

Dr. Zadikoff:

That whole area is getting much, much more interesting. Years ago we would have said there is no genetics involved. It's some sort of sporadic environment thing, but we don't know exactly what the environmental cause is. Now we are beginning to learn that there probably is more of an interesting interplay between genetics

and environment. In general Parkinson's disease still remains a sporadic disease, meaning that if one person in the family is affected the other people are not at any greater risk. So in general that's still the thought.

We are learning now that there probably is more of a genetic role, but unfortunately that's a very complicated issue still. And so for the most part we don't know how to interpret most of the genetic mutations that we found. In a small minority it is a clearly inherited disease. So you can see a very clear lineage where it went from mother to son to grandson or you can see two or three siblings affected, and there is a clear genetic link. In a lot of these others we're finding these genetic mutations, but we're not exactly sure how to interpret them yet. We don't know if it's enough to have that mutation or maybe you need that one genetic abnormality but something else needs to happen as well, and what is that something else? We're not quite sure yet.

Andrew:

Is there anything someone can do to prevent Parkinson's? Eat a certain diet? Do something? What about that?

Dr. Zadikoff:

No. Again, that's something that we often get asked. And it's of course a reasonable question. If you knew there was something you could do to prevent the disease of course you would do it. But at this point in time there isn't anything that we're routinely telling people, This is what you need to do to prevent Parkinson's disease because we really just don't know. We're learning so much, and there's a lot of different theories about what starts the whole process off. And actually by identifying these little genetic abnormalities we learn a heck of a lot more. Because if you can learn what a gene does and then what happens when it goes wrong we may be able to take those lessons to the majority of patients even if they don't have that mutation and see if those are the things that are going wrong. People take that back to their basic science laboratories.

But at this point in time there are no foods you should eat, there's no food you should avoid particularly. In general it's just, you know, the idea of living a healthy lifestyle: Everything in moderation.

Andrew:

You know, because everybody is always looking at the paper and it says eat this drink this, it will cure cancer, it will prevent heart disease.

Dr. Zadikoff:

If only it were that easy.

Andrew:

Yeah, I can understand that. So just to sum up, Dr. Zadikoff. So you're devoting your life to this. Are you hopeful that you and your colleagues will be able to make greater progress?

PROGRESS IN THE MANAGEMENT OF PARKINSON'S

Dr. Zadikoff:

Even since I started doing this there has been huge amounts of progress. And the other thing that's great is that we learn that there are some similar principles between Parkinson's disease and other neurodegenerative diseases, and so lessons we learn from a lot of other diseases can also help in our research in Parkinson's disease. And these days with the internet and everything else, there's huge amounts of collaboration between scientists all across the states and across the world. So we really are making a remarkable amount of progress. A lot needs to be done. People need to understand the cure isn't coming tomorrow, but we really are making a lot of progress in what we're doing.

Andrew:

Well, that's neat to hear you say that and the hopefulness in your voice and in your words. I want to congratulate you on your multidisciplinary team at Northwestern Memorial and your dedication to families dealing with Parkinson's. Thank you so much for being with us.

Dr. Zadikoff:

Pleasure. Thank you for having me again.

Andrew:

We've been meeting with Dr. Cindy Zadikoff, who is a specialist in Parkinson's and treatment of Parkinson's disease and the whole team working together to help the family as well at Northwestern Memorial. If you you'd like more information about Northwestern Memorial Hospital's physicians and services it's all waiting for you there on the website at nmh.org. And, of course, if you want to request an appointment online with Dr. Zadikoff you can do that there also on the website.

Our next Patient Power program is December 11. We'll be discussing stress, self control and emotional eating. We'll have with us Dr. Howard Farkas. I'm Andrew Schorr. You've been listening to Patient Power on HealthNet brought to you by Northwestern Memorial Hospital.

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