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https://reachmd.com/programs/cme/optic-neuritis-primer/8397/

Released: 12/09/2016
Valid until: 12/08/2017
Time needed to complete: 15 minutes

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An Optic Neuritis Primer

Narrator:
Welcome to the CME-certified activity, “An Optic Neuritis Primer,” on ReachMD. This activity is co-provided by Med-IQ and Duke University Health System Department of Clinical Education and Professional Development.

In this segment, Dr. M. Tariq Bhatti of the Duke Eye Center explores the differential diagnosis of optic neuritis, its most common signs and symptoms, and available treatments. In addition, the relationship among optic neuritis, multiple sclerosis, and clinically isolated syndrome is discussed, as well as strategies for managing patients at risk of developing multiple sclerosis.

Your host is Dr. Adrienne Scott, who is Assistant Professor of Ophthalmology at Wilmer Eye Institute, Johns Hopkins University School of Medicine in Baltimore, Maryland.

Dr. Scott:
Hello, I am your host, Dr. Adrienne Scott. We're recording live from the American Academy of Ophthalmology Meeting in Chicago, and with me today I'm honored to have Dr. Tariq Bhatti, Professor of Ophthalmology, Professor of Neurosurgery, Professor of Neurology and Chief of Neuroophthalmology at the Duke University Eye Center at the Duke University School of Medicine.

Dr. Bhatti, welcome to ReachMD.

Dr. Bhatti:
Thank you, Dr. Scott. It's really a pleasure to be here, and I feel honored. Thank you so much for doing this.

Dr. Scott:
Well, it's my pleasure. Dr. Bhatti, we are interested in your expertise regarding optic neuritis. Can you tell our audience a little bit about what is optic neuritis?

Dr. Bhatti:
Yes, so optic neuritis is defined as an acute inflammatory demyelinating process. Usually we mean the idiopathic or the type that's associated with multiple sclerosis, but the general definition of optic neuritis would be any type of inflammatory and infectious cause. It can be one time, meaning monophasic, or it can occur multiple times, recurrent, or be polyphasic.

Dr. Scott:
Now, how often are you seeing this in your clinical practice? How common is optic neuritis?

Dr. Bhatti:
Well, in a young person, meaning somebody younger than the age of 46, I would say it's the most common cause of acute vision loss due to an optic nerve problem, so whether you're a neuroophthalmologist such as myself or a general ophthalmologist, you're going to be seeing this in your clinical practice very often because it's so common. And it's also, as I think we'll talk about later, it's so important to be able to recognize, because we have treatments for not only optic neuritis in terms of vision, but also the neurological implications that optic neuritis carries with it.

Dr. Scott:
Fascinating. Now, is it also seen in the pediatric population? And if so, is it something that presents differently in kids?

Dr. Bhatti:
That's a great question. So, yes, of course we see it in the pediatric population, probably not as common as in the adult population, and it's also very different. Unlike adult optic neuritis, which presents usually unilateral, one eye vision loss, in children it's often bilateral. And unlike in adults where only a third of the patients will have a swollen optic nerve, over two-thirds of pediatric cases of optic neuritis will be swollen -- the optic nerves will be swollen. So, in terms of clinical presentation, you actually might see a child with bilateral vision loss with bilateral optic nerve swelling and you may think it's papilledema when, in fact, it's bilateral optic neuritis. So, it's very important to be able to appreciate that pediatric cases can be very different from adult cases. And also, pediatric optic neuritis is often associated with some sort of parainfectious process, so if you take a history of the child or the family, they'll often tell you that the child was sick or there was somebody sick in the family. It is associated with multiple sclerosis just like the adult type. We don't have that much good data as we do with adult type, but it may not be as strong association of pediatric optic neuritis with multiple sclerosis, but still that association is there, and that's one of the things that we do concern ourselves when we see a patient, young child, with optic neuritis.

Dr. Scott:
Very interesting. Now, can you give us an idea of how commonly are you doing the workup for optic neuritis looking for some other, for example, an infectious cause as opposed to just the idiopathic variant?

Dr. Bhatti:
I like to remind people that the definition of your typical optic neuritis is what we got from the optic neuritis treatment trial, which is a young, Caucasian woman who has pain with eye movements and an examination consistent with an optic neuropathy. If you meet that criteria, then it's optic neuritis. You really don't need to do a workup except for an MRI. However, if it's somebody who's a little bit older, say over the age of 46, or somebody a little bit younger, younger than 16 years of age, or an African-American, or somebody who presents with some retinal findings, these are all atypical cases and they need to be worked up. And the differential diagnosis of optic neuritis is actually very vast. It goes infectious, inflammatory, hereditary, toxic causes, even trauma can look like optic neuritis, so the differential is very vast. But again, if you have a young, Caucasian woman who complains of eye pain with eye movements and examination consistent with an optic neuropathy, it's pretty much optic neuritis and you just need to get an MRI of the brain and orbits, but anybody outside of that sort of very confined definition, then a workup needs to be done to exclude some of the other causes of optic neuritis.

Dr. Scott:
If we have those patients in our clinic who meet the clinical signs and symptoms for optic neuritis, can you walk us through the steps that you would advise physicians to follow at that point?

Dr. Bhatti:
There are actually multiple steps that are involved, and in the vast majority of cases, I would say for a general ophthalmologist, somebody who doesn't know neuroophthalmology, that you're probably going to want to refer -- if not probably, you should refer this patient to a neurologist. But, as an ophthalmologist, you can set the stage for the neurologist very well.

So, in general, what I would tell a general ophthalmologist, for example, who sees a patient with optic neuritis, and they don't have the luxury of having a neuroophthalmologist available, is that once they have made the diagnosis of optic neuritis and they have gotten the MRI, for example -- which I would recommend, strongly encourage everybody get an MRI of the brain and orbits with contrast -- that one discussion point that needs to be had is whether the patient wants to be treated or not for that optic neuritis? And that treatment would be corticosteroids; it would be steroids. And it wouldn't be oral steroids. It would be intravenous steroids at a high dose. Of course, the risk/benefits would be needed to be discussed with the patient in terms of giving steroids, in terms of having some side effects with the steroids, mood changes, maybe some gastritis, things like that, but in terms of benefits, the ophthalmologist should remind the patient that patients with optic neuritis will get better on their own. Their vision will get better. But by giving steroids, you can accelerate the recovery of vision by about two weeks. And that's an important discussion to have, because my experience has been that most people think giving steroids actually improves the final visual outcome. It doesn't do that. What it does is it accelerates the final visual outcome, whatever that outcome would be. And studies have shown that whether you give steroids or not, the vision is going to be what it's going to be.

In fact, what's really, actually, quite astonishing is that when giving steroids -- on average, of course, when we look at studies across the board -- the average acceleration of recovery of vision is only two weeks. So, as long as you're confident with the diagnosis, you feel that there's no other infectious cause where steroids could maybe be harmful, I think using steroids… I usually use a dose and what we recommend is a dose of a gram a day of methylprednisolone for 3 days, usually followed by about a 2- to 3-week oral prednisone taper.

Dr. Scott:
Sure. So, I'm your patient. I'm sitting there. You've just diagnosed me with optic neuritis. It's the first experience with this for me. What do you say? How do you counsel your patients about what the visual outcome would be? For example, do you see some patients that do better or worse with certain presenting signs or symptoms? And what's my risk in the other eye? And how likely am I to get MS?

Dr. Bhatti:
Right, that's a lot of questions.

Dr. Scott:
It's a lot of questions.

Dr. Bhatti:
There are a lot of questions, and that's why it takes so long in neuroophthalmology to take care of these patients because there are a lot of questions, and this boils down to the fact that the vast majority of these patients are young; they're females; they're in the prime of their life; they may be in a job or going to school and they may be starting a family; and there's a lot of issues that come up. But I usually like to start off with the good news, which is I like to tell my patients that "Your vision is going to get better whether we treat you or not," and I remind patients that even those who are no light perception vision, 50% of them will regain their vision of 20/40 or better. And, in fact, if you look at studies across the board, over 90% of patients regain vision of 20/40 or better of all-comers of optic neuritis. So, I start off with the good news, and then I do remind them that, yes, you have a risk of optic neuritis in the other eye, maybe about 30% in the next 15 years. We can't predict if you will develop optic neuritis in the other eye. In fact, I remind them I can't predict if you'll have another bout of optic neuritis in the eye that's affected, and so we need to be vigilant all the time. Because of that unpredictability and not knowing the future, we just need to be aware and to be cognizant of any problems that you might have.

Now, as an ophthalmologist, you may not be able to tell them everything, but what you can say is, "Look, we do know that optic neuritis is associated with multiple sclerosis. I may not have all the answers for you. I'm going to refer you to a neurologist," which is, I think, the appropriate next step. But if you want to take it one step further, you can give them some statistics that can help for them, and what you can say is, "Look, the risk of MS for you having optic neuritis is really based on your MRI, so we really need to get that MRI to be able to determine what your risk is, and if your MRI is normal, then your risk over the next 15 years is only about 25%. If it's abnormal, then your risk goes up to 70%," and then that's when we really need to get the neurologist involved.

The other thing, though, that I emphasize to patients is that even if you get a normal MRI, still you have to understand that your risk of developing MS is higher than the general population. Now, the general population risk of developing multiple sclerosis is about 1%, so by definition having optic neuritis puts you at a higher risk. And the reason I emphasize that is because I've found in my own practice and just my clinical experience where patients were told, "Oh yeah, I was told I had optic neuritis and not to worry about it," now that sounds fine in sort of the superficial way, but what it actually did was it set this patient up with a false sense of security. And, of course, I don't want to scare people, and I definitely don't want to scare my patients, but they do need to realize that this is something that may come up in the future. So, just having a normal MRI doesn't mean you're not at risk of MS, because that 25%, that I mentioned earlier, at 15 years is still higher than the general population. So, you have to find this very fine balance of trying to keep calm, keep the patient calm, because this is an issue and a diagnosis that will affect this patient for the rest of their lives.

Dr. Scott:
So, that's a thorough discussion that needs to be had with all of our patients with this diagnosis. Now, in these young women, are there any tests that we recommend beforehand? So, for example, pregnancy testing, do we recommend that before putting them on the course of methylprednisolone?

Dr. Bhatti:
The workup of these patients at a minimum should be an MRI of the brain with contrast. Just to give you a little bit of background, it's actually been in the news a little bit in the recent literature, and JAMA just came out with this study that looked over several thousand pregnant women, and what they found was -- and we've known this for some time -- that gadolinium should not be used during pregnancy. MRI is fine. The MRI is fine for the mother and for the fetus, but the gadolinium is not to be used. There are some possible harmful effects on the fetus, so when I do have a patient, the first question I ask is, "Is there a possibility you could be pregnant?" and if they say, "No," that's fine, I don't do a pregnancy, but if they say, "Yes," then I do get a pregnancy test. And if it's positive, then I order the MRI without gadolinium and explain to the patient that this may not be the best test that we can do because gadolinium really improves our ability to detect lesions in terms of active lesions of both the optic nerve as well as the brain, and so, I remind them that maybe after the pregnancy is over and you're settling down, then we can do the MRI with gadolinium. So, that is actually a very important question.

In terms of pregnancy and using methylprednisolone, I would have a discussion with the patient's OB, and if they don't have one, I

would quickly ask them to get one to discuss this. And usually, the obstetricians are very good. They work very well with myself and the patients figuring out what's the best treatment strategy. And if you look at the optic neuritis treatment trial, there were some patients who had side effects; there was one patient who had acute psychosis, another one who developed acute pancreatitis, so just because you're young and you have no medical problems doesn't mean that you're immune from having side effects. I remind the patient, again, you don't have to have the steroids. This is going to get better on its own. So, sometimes you can defer things if you're concerned and you have to work through things. I mean, this woman now, for example, well, not only found out she has optic neuritis and MS but could suddenly find out that she's pregnant too. I mean, those are two big hits, and so you sometimes do need to take a step back and try to let the patient absorb everything that's going on and work through it.

Dr. Scott:
Yes, that would be a lot of information in one day to try to digest.

Dr. Bhatti:
Yes.

Dr. Scott:
But nowadays, are there other anti-inflammatories we're exploring?

Dr. Bhatti:
Yes, we are. There are a lot of studies being looked at in terms of optic neuritis, but even more exciting is that when you see a patient with optic neuritis and they don't meet the formal definition of multiple sclerosis, although they have an abnormal MRI, we've been looking at using these already FDA-approved medications for relapsing forms of MS in terms of reducing the risk of these patients going on to develop multiple sclerosis, and that's something very exciting. The other thing that's very exciting is with the use of OCT now, which, of course, revolutionized ophthalmology in terms of glaucoma and retina, but we're also using it in neuroophthalmology, and what we're finding is that we can use OCT as a marker of axonal preservation and using it as an endpoint in some of the clinical trials for neuroprotection. In fact, there are some clinical trials that are not even looking at optic neuritis but rather multiple sclerosis, and they are throwing in the OCT as a tertiary metric to see if there's even any sense that there may be neuroprotection within the retina, which would then might translate to neuroprotection within the brain.

Dr. Scott:
Well, Dr. Bhatti, this was a fascinating discussion. I thank you very much for your time. I learned a lot about optic neuritis and the ONTT and some of the exciting things for the future. We appreciate your time. You provided an excellent overview.

Dr. Bhatti:
Thank you very much, Dr. Scott.

Dr. Scott:
I am your host, Dr. Adrienne Scott. Thank you for listening.