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Using MRI to Differentiate Peripheral Spondyloarthritis From Osteoarthritis

Announcer:

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This episode of *Living Rheum*, titled "Using MRI to Differentiate Axial Spondyloarthritis From Osteoarthritis," is sponsored by Novartis Innovative Medicines US Medical Affairs. The host and speaker have been compensated for their time. This program is intended for health care professionals.

Here's your host, Dr Ethan Craig.

Dr Craig:

Over the last 20 or so years, the frequent use of magnetic resonance imaging has really changed the face of axial spondyloarthritis, broadening the prior entity of radiographic axSpA, or what was called ankylosing spondylitis, to now incorporate patients that don't have radiographic disease. The sensitivity of MRI in detecting structural lesions, and finding things like bone marrow edema, which can suggest active inflammatory changes, has really reshaped the field of axSpA. However, as much as we wish that the MRI could be an answer machine, data from the last several years has really demonstrated some of the limitations of MRI, particularly in terms of false positive rates. Prior data over the last several years has showed evidence of bone marrow edema in otherwise healthy patients, and more recently, unexpected findings of things, even including structural lesions like erosions. It's timely, then, to touch base with an expert on spondyloarthritis imaging, and to review where the field stands now and update us on what the role of MRI does appear to be, at this point in time in the diagnosis of SpA.

This is ReachMD, and I'm Dr Ethan Craig. There's no one I'd rather have join me to discuss this topic than our guest, Dr Walter Maksymowych. Dr Maksymowych is a professor of medicine at the University of Alberta and he's chief medical officer of CARE Arthritis. Dr Maksymowych, thanks for being here today.

Dr Maksymowych:

Thank you so much, Ethan. It's a great pleasure to be with you today.

Dr Craig:

So, let me start with this: Broadly speaking, where do you see MRI falling in terms of the role in clinical evaluation of patients with inflammatory back pain, or maybe put differently, should anyone with inflammatory back pain be ruled out as having SpA without first taking an MRI of the SI joints?

Dr Maksymowych:

That's an excellent question, Ethan, and I would say that clinical context is very important in making such a decision. So, if you have a patient who presents with characteristic features of inflammatory back pain, I think it's important to appreciate that this is relatively nonspecific and can occasionally be seen in patients with other spinal disorders, such as prolapsed discs. And so, if you have a young patient who is B27 positive, especially a male—but by no means discount a female with similar symptoms who's B27 positive—I think it's really incumbent to do an MRI, especially if the radiograph is not definitive for sacroiliitis. So there really is a strong clinical suspicion, a questionable radiograph, then you really need to go to do an MRI. And if you have a strong clinical suspicion and the MRI comes back negative, you should really consider repeating the MRI about 6 months later, especially if the patient is really symptomatic and not responding to simple, conservative therapies. So, in this day and age, I would state that radiography really should not be the cornerstone

of evaluation. That really should be MRI.

Dr Craig:

How about areas other than the sacroiliac joint? How often are you recommending that we obtain an MRI of, say, the thoracic or the lumbar spine in patients that we're evaluating for axial spondyloarthritis?

Dr Maksymowych:

Again, it really depends on clinical context, and ordinarily there is little to be gained by routinely imaging the spine in addition to the sacroiliac joints, but there are circumstances where this may be beneficial. And increasing the diagnostic yield, for example, in the setting of the patient having a personal or family history of psoriasis, because the sacroiliac joint lesions may be minor, may look relatively nonspecific, and these patients may have more prominent spinal lesions in the thoracic area. And a second circumstance would be a patient who presents with symptoms that are not primarily in the buttock region, but higher up in the spine, for example, in the thoracolumbar, the interscapular region. So, clinical context is very important.

Dr Craig:

And, you know, on that note, I'd like to get your take on some of the data I mentioned in the intro from over the last few years showing relatively high rates of bone marrow edema and maybe even erosive changes in the sacroiliac joint and spine among healthy patients, and also among patients with back pain, postpartum women, athletes, and so on. Have these findings changed the way that you view using MRI in spondyloarthritis?

Dr Maksymowych:

I wouldn't say so, and false positive findings of bone marrow edema have been known for some time to occur in certain settings, such as a woman who has just given birth, an athlete. You will then see potentially small focal areas of bone marrow edema, and these will occur especially in the anterior sacrum or the anterior ileum. Age and gender are very important for contextual interpretation, so for example, the older you get, the older your patient, the more likely that patient is to have degenerative changes with these false positive bone marrow edema lesions. Now, structural lesions can be very helpful if they occur in the setting of bone marrow edema, as they often do when patients first present. And it's important not to confuse true erosions—true structural lesions associated with spondyloarthritis—with the minor variations in the contour of the joint, and I think sometimes these variations in the contour of the joint have been falsely called erosions. I still think erosions are quite specific for axial spondyloarthritis.

Dr Craig:

And, if we're thinking about, specifically, patients with inflammatory back pain, what are some common mimics you might see on an MRI of the spine or the SI joint that you think are important to keep in mind when we're thinking about a differential diagnosis for sacroiliitis seen on MRI?

Dr Maksymowych:

So, the bone marrow lesions in spondyloarthritis look rather different from the mimics. I mentioned osteoarthritis, which may present with small, focal lesions in the anterior sacrum, or the anterior ileum, and these are lesions that are really quite discreet. Bone marrow edema in the setting of axial spondyloarthritis tends to be more diffuse and associated with structural lesions like erosions. Women in the first 6 months after delivery of a child will often have bone marrow edema, so interpretation can be quite difficult in that setting, and often we have to pay particular attention to structural lesions in postpartum women. Septic lesions may present with diffuse bone marrow edema affecting the entire bone, the entire ileum, the entire sacrum, and this may extend beyond the confines of the joint. So, these are situations that may occasionally mimic axial spondyloarthritis, and interpretation in the context of structural lesions can be very helpful.

Dr Craig:

There's a lot we've covered here, and I think it's worth asking for our listeners, are there any resources out there for people that are interested in improving their own skills in reading MRI of the SI that you can refer to?

Dr Maksymowych:

Yes, indeed, Ethan. So, it's very important that clinicians really understand the language of MRI. And they really need to look at DICOM format images, the type of format that medical images are available in in hospital systems all over the world. And exactly this type of format and these type of resources are available on the CaRE in Arthritis website, and also on the ASAS website, the Assessments in Spondyloarthritis International Society. There are resources there and images in DICOM format, highly annotated so that the participant can engage in a self-learning, exercise-based online evaluation.

Dr Craig:

And that, I think that's a perfect way to round out our discussion on this topic, and I wanna thank my guest for helping us think in depth about MRI and the diagnosis of axSpA. Dr Maksymowych, it was great speaking with you today.

Dr Maksymowych:

It was a great pleasure, Ethan. Thank you so much.

Announcer:

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