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Clinical Conundrums in ARIA: Nuances of Microhemorrhages when Evaluating an MRI for ARIA

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Dr. Bateman:
Welcome to Clinical Conundrums: Navigating Case Scenarios in Your Own Practice Setting, where we will cover quick and challenging cases related to amyloid-related imaging abnormalities, or ARIA, management. I'm Dr. Trey Bateman, and here with me today are doctors Jerry Barakos and Joy Snider. Let's dive into our case.

Dr. Snider:
Yes. Our case today is Gloria, who's an 80-year-old lady who has mild cognitive impairment due to Alzheimer's disease. She's an ApoE3/E3 carrier, and she's interested in starting anti-amyloid therapy. Her baseline MRI showed one microhemorrhage in the right temporal white matter on the SWI sequences, but it was not seen on GRE. So again, SWI is a little more sensitive than GRE.

Dr. Bateman:
So based on these findings, I suspect the patient was started on treatment?

Dr. Snider:
Yes. So this lady, based on these findings and normal lab values and all the other evaluation we do, was started on lecanemab. She did well, but on her MRI, before the fifth dose of lecanemab, she had a small area of ARIA-E about 1.1 cm in the left posterior parietal lobe. In addition, she now had 10 microhemorrhages, mostly in the white matter. Upon review, some of the hemorrhages were seen in retrospect, but were only convincing when both scans were reviewed. So possibly those were present at baseline, but the ARIA-E was new.

Dr. Barakos:
Yes. From an imaging point of view, as has been pointed out, when we're looking for the blood products, the lobar microhemorrhages and superficial siderosis, we have to use a blood-sensitive sequence. So identifying these very minute or microscopic foci blood product, they will be invisible on a routine T1, T2 flare, T2 FSE sequences. We have to use the blood-sensitive sequences. Now, in trials over the last 20 years, we have used standard protocols that have been universally available across the platforms across the country and much of the world. And those have been the T2 star sequences. Nowadays, in our clinical practices, most of us will be using the SWI sequences, which are much more sensitive to blood product.

So our grading scale for the microhemorrhages, for example, on baseline, the patient will not be treated with these agents if they have more than four lobar microhemorrhages. Obviously, if you use a susceptibility weighted sequence, you may see more. And I think this case reflects one of those instances where, in retrospect, we believe that the patient may have had more microhemes at baseline, and those become evident when performing the SWI. So long story short, there's a little bit of variability here, because we do not have

established protocols on how many microhemorrhages or how much siderosis to guide us on these grading scales using SWI. So there's a little bit of clinical acumen that has to be employed.

And this is where reporting is very important for the radiologist to have adequate communication, closing the loop of communication with our referring physicians, to let them know that we do see these ARIA-type changes. And then to quantitate them quite accurately, we want to describe what is new as best we can tell, where it's located, and provide some measured metrics as to how extensive are these ARIA changes, both the ARIA-E and the ARIA-H, using the grading scale available that is on every package insert.

So at that point, we turn to our clinician. Dr. Snider, what do you do with this information?

Dr. Snider:
Yeah, that's very, very helpful, Jerry, and really important. And as you pointed out, important to work with your radiologist and make sure that the templates include this very detailed information of what you see and what's new.

So for this lady, this would engender a conversation with a patient and her family, first, to ensure that she does not have symptoms,

Our two clinical options, as Jerry pointed out, are we can stop the drug now, or we can continue dosing and continue to reassess. Per the protocol, if we accept this as asymptomatic ARIA-E and no actual change in microhemorrhages, although now they're 10 and not 1 or 2, we would continue dosing and repeat the MRI in about 4 weeks. So I would offer the patient those options. We can stop dosing, again probably repeat an MRI in 4 weeks to see if the ARIA-E is resolved or if there are more microhemorrhages. Or we can continue dosing and also repeat the MRI.

For the patient, we would reassure them that probably there weren't new microhemorrhages, these were probably there before, but this could make their risk for ARIA higher. We don't know if the ARIA is going to worsen. We would certainly want to counsel them about finding symptoms. And it really depends on the patient and family's preference. If they are determined to move ahead, I would support that. It would probably make me nervous, but I would do it. And if they are very concerned, I would probably not move ahead and hold off on dosing, repeat the MRI in 4 weeks, see where we are, and then have that discussion again.

So it does get very nuanced, but it involves great communication with your radiologist so you understand what's new looking at the scan. and then going over it carefully with the patient and family and involving them in decision-making.

Dr. Bateman:
This is a great case and great discussion. This really highlights some of the challenges of applying these pretty concrete-seeming rules that are published. It doesn't always unfold that way in clinical practice. And this is a great example of how ongoing communication and trying to operate on the best information that you have at the time is going to be a constant goal that we're striving for.

Thank you both for this insightful discussion. To our viewers, be sure to explore our other episodes for more in-depth insights into the nuances of ARIA management. Thank you for joining us.

Announcer:
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