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Released: 10/15/2024

Valid until: 10/15/2025

Time needed to complete: 1h 13m

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## Mapping the Mind: The Pathophysiology That Drives AAD

### Announcer:

Welcome to CME on ReachMD. This episode is part of our MinuteCE curriculum.

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### Dr. Portsteinsson:

This is CME on ReachMD and I'm Dr. Anton Porteinsson. Joining me today is Dr. Brenton Montano.

Let's talk about the pathophysiology that drives agitation in Alzheimer's disease. Let me start. Basically, we know that Alzheimer's disease is a multifaceted disease. If you look at the changes in the brain, we have the elevation of amyloid protein leading to amyloid plaques, as well as soluble species. We have Tau and Tau tangles that create problems as well, as well as neuroinflammation and oxidative stress.

So, there are multitudes of things that happen, and the damage to the brain is different from one individual to the other. So, which centers of the brain are more affected as compared to others? What we do know is that people that have neuropsychiatric symptoms in Alzheimer's disease, such as agitation and aggression, that we can have impairment in the serotonergic system that we know plays a big role in anxiety and depression and irritability, and in dementia can present itself as agitation or even aggressive behaviors. And we have changes to the frontal lobes that often can help mediate these types of behaviors. And it's important to be aware of the fact that agitation is part of the disease. It can certainly be a pattern that can emerge if there is some pre-existing psychiatric conditions, if there is a lifelong history of maybe depression or anxiety or impulsivity or bipolar disorder. But in many of these patients this arises de Novo. This is new type of behavior and, it's a point that is important to make that this is part of the disease, and it needs to be dealt with as such. This is not willful. This is not personality and it needs to have the appropriate evaluation, care and management.

So, Brendon, do you have anything to add in terms of this aspect of agitation and aggression in Alzheimer's disease?

### Dr. Montano:

You've stated it beautifully, but I would add that as an internal medicine doctor, I see so many other contributing factors that can aggravate an already disrupted system where pain, chronic pain for instance, if it's not properly addressed and appreciated and treated, can result in worsening agitation and can also lead to aggravation. So, I would look at the general medical conditions that we treat always, including those that are painful, osteoarthritis, headache, whatever other pain syndromes the patient may have, as well as diseases like diabetes, and make sure that they're treated as optimally as possible so that you know that what is left is disruption in centers of the brain that's resulting in the agitation in the Alzheimer's patient.

### Dr. Porteinsson:

Yeah, Brendon, hard for me to admit that it isn't all just the brain, but this is truly something that providers need to be aware of.

That there is a multitude of conditions that can contribute to behaviors that express themselves as agitation. So, it's important to do the appropriate medical work up and rule out reversible contributors. We also actually sometimes see this in the interaction between the

patients and their care partners that might be less than optimal, so education and guidance in terms of how better to communicate, how better to , quote, get along and avoid confrontations, and always keep safety first is critical.

**Dr. Porteinsson:**

This has been an important, while brief, but overall, a great discussion. I hope you found this information useful and thank you for tuning in.

**Announcer:**

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