‘No Evidence of Disease Activity’ in Relapsing Multiple Sclerosis

Relapsing multiple sclerosis (RMS) is a type of MS characterized by attacks (relapses) where there is a sudden appearance of new symptoms and then recovery. The two types of RMS are: relapsing-remitting MS (RRMS) and secondary progressive MS (SPMS). There are four key measures of multiple sclerosis disease activity: relapses, MRI lesions, brain shrinkage, and disability progression.

Physicians use these four key measures to assess disease activity in RMS:
- **Relapses**: Magnetic resonance imaging (MRI) lesions
- **MRI lesions**: Disability progression
- **Brain shrinkage**: Disability progression
- **Disability progression**: Disability progression

When these four key measures are effectively impacted by treatment, the patient is said to have reached a status of ‘no evidence of disease activity (NEDA-4).’ NEDA-4 helps give physicians a more concrete picture of a patient’s disease activity and response to treatment and is crucial to identifying the most appropriate treatment approach.

### What are they?

- **Relapses**: The appearance of new symptoms, or the return of old symptoms for a period of 24 hours or more—the absence of a change in core body temperature or infection.

### Why do they matter?

Incomplete recovery from a relapse can significantly advance the level of disability.

### When patients achieve NEDA-4, they have no confirmed relapses.

### MRI lesions

- **What are they?**: In RMS, damage resulting in the loss of neurons and brain tissue is driven by distinct inflammatory lesions (focal damage)11,12.

- **Why do they matter?**: Distinct inflammatory lesion damage is associated with relapses and disability progression.

- **When patients achieve NEDA-4, they have no confirmed disability progression.**

### Brain shrinkage

- **What is it?**: Brain shrinkage (brain volume loss) reflects the loss of brain tissue and is a result of both focal inflammatory damage and widespread neurodegenerative processes (diffuse damage)11,12.

- **Why does it matter?**: Brain shrinkage is associated with the loss of physical and cognitive function and can predict a patient’s disability progression over time.

- **When patients achieve NEDA-4, their annual brain volume loss is equal to or less than 0.4%.**

### Disability progression

- **What is it?**: The rate at which a person’s disability has worsened over time.

- **Why does it matter?**: Accumulation of disability impacts a patient’s mobility and independence.

- **When patients achieve NEDA-4, they have no confirmed disability progression as measured by the Expanded Disability Status Scale (EDSS).**

### Addressing these four measures through early and effective treatment is important to impact the course of RMS and preserve what matters most to patients: their physical and cognitive function.

### References