Second SPMS Patient Given Foralumab Continues to Improve

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Six months of treatment with foralumab nasal spray led to significant functional improvements in the second patient with non-active secondary progressive multiple sclerosis (SPMS) who received treatment under a single-patient expanded access program.

Findings from this patient have been generally consistent with those seen in the first non-active SPMS patient, who also experienced clinical improvement after six months of treatment.

Non-active SPMS is a secondary form of disease in which patients experience continuous disability progression in the absence of relapses. SPMS has a significant unmet need for effective treatments; mitoxantrone is the only approved disease-modifying treatment approved in the U.S. for this type of MS.

Based on data from the first two patients, the U.S. Food and Drug Administration (FDA) cleared a special access program at Harvard Medical School's Brigham and Women's Hospital in Massachusetts to test foralumab in up to eight more patients.

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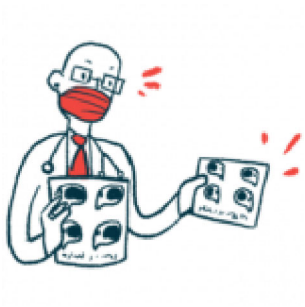

More Microscopic Brain Damage Seen in SPMS Than in RRMS

"I am truly excited and encouraged by the clinical benefits shown so far for the first two expanded access patients receiving intranasal foralumab for SPMS," Gabriele Cerrone, executive chairman and interim CEO of Tiziana Life Sciences, said in a press release.

"This program is a top priority for us, and we expect to enroll four additional patients with SPMS at Brigham and Women's Hospital (BWH) in [the fourth quarter of] 2022," added Cerrone.

Tiziana's foralumab is designed to reduce inflammation by targeting CD3, a protein receptor found on immune T-cells. In animal models, the treatment suppressed the activity of inflammatory T-cell subsets, while enhancing the function of regulatory T-cells, which repress the inflammatory activity of other types of immune cells.

A Phase 1 clinical trial of foralumab in healthy individuals demonstrated the nasal spray to be well-tolerated and safe, while also showing promising immune-modulating effects.

Foralumab is now being studied in SPMS patients in two single-patient access programs at BWH. Patients are receiving a 50 microgram dose of the nasal spray into each nostril in three week cycles — three doses per week for two weeks, followed by a week of rest.

First patient did well

Data from the first SPMS patient, who was experiencing continuous disease worsening despite treatment with approved MS medications, indicated that the therapy was well-tolerated and led to improvements in validated measures of walking ability, cognition, and dexterity after six months.

These observed clinical benefits were accompanied by a suppression of microglial activation in the brain, as observed on PET scans. Microglia are the brain-resident immune cells whose activation is thought to contribute to inflammation in MS and other neurodegenerative diseases.

PET scans showed that microglia were less active across all parts of the brain, with reductions in activity ranging from 20—25% at three months and 36—50% at six months.

Based on the promising findings, the FDA gave permission for the first patient to continue receiving the treatment for another six months, and also allowed a second patient to begin treatment.

The second patient was diagnosed with non-active SPMS in 2014 and experienced progressively worsening disability in the eight years that followed. After three months of foralumab treatment, however, the patient experienced neurological and walking improvements, and PET scans also showed a 10—30% reduction in microglial activation.

Now, Tiziana reports that the clinical improvements were sustained for at least six months. On June 8 — around the time of the three-month report — the patient still required a cane to walk 100 meters. As of Sept. 12, the patient could walk 100 meters without a cane or need for rest.

EDSS score stable

According to Tiziana, that corresponds to a clinically meaningful reduction of 0.5 points on the Expanded Disability Status Scale (EDSS). The EDSS pyramidal score, which evaluates muscle weakness and moving difficulties, was stable and did not worsen over time.

To date, the patient has received 10.5 cycles of foralumab treatment. A PET scan will be performed in the next few months to confirm whether a reduction in microglial activation was also observed up to six months.

“Patients with non-active SPMS normally do not improve over a six-month time course,” said Tanuja Chitnis, MD, professor of neurology and principal investigator of the study at BWH.

“I am very encouraged by these results and look forward to seeing this patient’s PET imaging to determine if there is a continued reduction in microglial activation to correlate with the improvement we are observing in the patient’s clinical exam,” Chitnis said.

Additional patients treated under these single-access programs will receive the same foralumab regimen, but their dose may be increased to 100 micrograms. Tiziana noted previously that data from all 10 patients are expected in 2023.