Researchers investigating new treatment for multiple sclerosis

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A new treatment under investigation for multiple sclerosis (MS) is safe and tolerable in phase I clinical trials, according to a study published August 27, 2014, in *Neurology Neuroimmunology & Neuroinflammation*, a new online-only, freely accessible, specialty medical journal. The publication is part of the *Neurology* family of journals, published by the American Academy of Neurology.

The phase I studies were the first to test the drug candidate in humans. Studies with animals showed that the drug, which is called anti-LINGO-1, or BIIB033, may be able to reverse the demyelination of the nerves. Anti-LINGO-1 blocks LINGO-1, a central nervous system protein that prevents myelination. Current treatments for MS work to reduce new damage to the brain, but do not repair new or past damage.

In MS, the body's immune system begins to attack the myelin that acts as insulation around the nerves in the central nervous system. This makes it more difficult for the nerves to send messages to and from the brain and spinal cord.

In the study, 72 healthy people without MS and 47 people with either relapsing-remitting MS or secondary progressive MS were given the drug or a placebo. The healthy participants received either a placebo or one dose of the drug by an infusion or an injection. The people with MS received either placebo or two intravenous doses of the drug two weeks apart. In both groups, participants received varying amounts of the drug, ranging from 0.1 mg/kg to 100 mg/kg.

The occurrence of side effects was similar for people who received the drug and those who received the placebo. Most side effects were mild to moderate and were not related to the drug. Side effects included headaches, upper respiratory infections and urinary tract infections. There were no serious side effects or deaths.

There were no significant changes in vital signs, EKGs or other safety tests of the drug.

Intravenous doses of 10 mg/kg and higher resulted in concentrations of the drug in the blood that were similar to or higher than the concentration that was associated with 90 percent of the maximum remyelination effect in studies with rats.

"With these results we have been able to start phase II studies to see whether this drug can actually repair the lost myelin in humans and have any effect on restoring physical and cognitive function and improving disability," said study author Diego Cadavid, MD, of Biogen Idec in Cambridge, Mass., which developed the drug. Cadavid is a member of the American Academy of Neurology.

Provided by American Academy of Neurology