

## **New approach shows results for Alzheimer's disease**

### **News from the frontier**

By Elizabeth Norton Lasley

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A medication used in treating rheumatoid arthritis has shown dramatic benefits for patients with Alzheimer's disease, improving memory and cognitive problems within minutes of the start of treatment.

In a 2006 pilot study, 15 patients with Alzheimer's disease received etanercept (known by the trade name Enbrel) weekly for six months, using a new method of injection directly overlying the spine. The patients responded quickly and, more than three years later, some are still showing improved memory and cognitive functioning. But that study was not set up for immediate assessment or for follow-up testing more often than once a month, according to study author Edward Tobinick of the University of California, Los Angeles.

In a new case report, published online Jan. 10 in the *Journal of Neuroinflammation*, Tobinick and Hyman Gross, at the University of Southern California, worked with an 81-year-old with moderate to severe dementia. The researchers conducted standardized cognitive testing before and after this "perispinal" injection of etanercept.

Ten minutes after the initial dose, he was calmer and less frustrated, correctly stating his location and coming close on what year it was—neither of which he could do before treatment. Two hours after treatment he displayed dramatically improved verbal and memory skills. After six weeks of treatment, the patient continued to show persistent improvement.

Tobinick says that this patient and the participants in the pilot study are functioning better in the real world, not just giving better answers on tests: "They're more cheerful, relaxed, more ready to join in conversation."

Etanercept targets a protein called tumor necrosis factor–alpha, produced by white blood cells and, in the brain, by support cells called glia. Recent research suggests that high levels of TNF–alpha disrupt synaptic communication among neurons, setting the stage for the betterknown signs of Alzheimer's disease, such as buildup of the beta-amyloid protein. The authors note that because one glial cell may make contact with more than 100,000 synapses, correcting a problem at this level may have rapid cognitive and behavioral effects.

#### **About Elizabeth Norton Lasley**

**Elizabeth Norton Lasley**, formerly a senior editor at Dana Press, is a writer with a specialization in neuroscience. Her freelance articles have appeared in numerous publications, including *Science*.