Medical Xpress

Protein linked to problems with executive thinking skills

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New research shows that a high level of C-reactive protein (CRP), a marker for inflammation in the blood, is associated with brain changes that are linked to problems with executive thinking skills. The study is published in the March 30, 2010, issue of *Neurology,* the medical journal of the American Academy of Neurology.

For the study, scientists examined 447 stroke and dementia-free people with an average age of 63.

Participants underwent MRI brain scans such as diffusion tensor imaging (DTI), a technique that measures water molecule movements in the brain. They also completed tests that measured verbal memory, word fluency and executive function, the process in the brain that allows for planning, decision making and selection of appropriate behavior.

The study found that higher levels of CRP led to worse performance in executive function. Higher levels of the protein also affected the frontal lobe of the brain, where some motor functions take place. Motor skills, however, were not measured in the study. Other areas of cognition, such as memory and language skills, showed no association with CRP.

Overall, the average time to complete a test of executive function was 85 seconds. Those with the highest levels of CRP took an average of seven seconds longer to complete the test than those with the lowest levels of the protein. The brain changes measured with DTI were equivalent to 12 years of aging for those with the highest levels of CRP compared to

those with the lowest levels.

"The use of aspirin and statin drugs as well as physical activity and controlling weight can help lower CRP levels in the body, but our analyses did not consider whether therapy would be effective or not," said study author Heike Wersching, MD, with the University of Münster in Germany.

Provided by American Academy of Neurology