Medical Xpress

First blood test to determine cognitive impairment in Parkinson's disease developed

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(PhysOrg.com) -- Researchers at the University of Pennsylvania School of Medicine's Udall Center for Parkinson's Research have developed the first blood-based biomarker test to predict cognitive decline in Parkinson's disease (PD). If results can be replicated and standardized in other Parkinson patients, by other investigators, the test could be a useful tool to use in selecting patients for the development of new drugs that can slow or prevent this complication of the disease.

After searching through a hundred different proteins found in blood plasma, researchers found that epidermal growth factor (EGF), a protein involved in regulating cell growth, proliferation, and differentiation, provided a strong biomarker signal for cognitive impairment in PD. The study determined that PD patients with low EGF levels and normal cognition were more likely to subsequently develop serious cognitive impairments during the 21-month median follow-up period. The study is published in the current issue of the *Annals of Neurology*.

"As a PD doctor, I hear all the time that my patients want to know whether their disease will progress rapidly, and if they'll have the type of Parkinson's where they get dementia," said Alice Chen-Plotkin, MD, assistant professor of Neurology at the University of Pennsylvania and the study's lead author. "If other studies verify these results, measuring EGF levels may be useful both as a clinical diagnostic tool and in the design of trials aimed at preserving cognition in Parkinson's disease."

As many as 83 percent of PD patients become demented over the long

course of the illness. Although duration of the disease and advanced age have been identified as risk factors, some patients experience cognitive impairment relatively soon after the disease strikes, while others won't experience dementia until the very end of their disease. And nearly 20 percent of patients never have dementia.

In the study, PD patients with EGF levels in the lowest range were eight times more likely to develop dementia, half of this group had dementia after 14 months. Cognitive follow-up data from the second set of patients, the replication group, will be available in 2012, to see if this pattern continues.

The most efficient and cost-effective way to test a drug that could preserve cognition in PD is to identify the most at-risk population for a clinical trial and evaluate the effect of the drug in a short timeframe. The EGF assay was designed to be broadly useful in clinical practice, and if validated, it could be used to select Parkinson patients for clinical trials.

"A test for cognitive impairment in PD could not only help patients in planning their futures, but by selecting patients at the greatest risk, we could significantly reduce the amount of time it would take to determine whether new drugs work," said senior author John Q. Trojanowski, MD, PhD, director of the Penn Udall Center and co-director at Penn's Center for Neurodegenerative Disease Research.

The EGF study was supported by the Penn-Pfizer Alliance – a peer-reviewed grant process sponsored by Pfizer and administered by Penn – and funding from the National Institutes of Health and the Marian S. Ware Alzheimer Program. Dr. Chen-Plotkin is also supported by a Burroughs Wellcome Fund Career Award for Medical Scientists and the Benaroya Fund.

More information: The EGF blood test is not currently available,

except in select research studies aimed at replicating and potentially verifying these findings. For patients interested in participating in the Biofluid Collection Research Program at the Penn Udall Center – which involves cognitive, motor and biofluid (i.e. blood, spinal fluid, DNA) tests – please contact Jacqueline Rick at 215-829-7778 or Jacqui.Rick(at)uphs.upenn.edu.

Provided by University of Pennsylvania School of Medicine

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