Alzheimer's disease: A new small molecule approach to treatment

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New therapeutic approaches in Alzheimer's disease are urgently needed. Work led by Professor Mark Pepys FRS over more than 20 years has identified a protein known as serum amyloid P component (SAP) as a possible therapeutic target in Alzheimer's disease. In collaboration with Roche he developed a new small molecule drug, CPHPC, which specifically targets SAP and removes it from the blood. In the exciting new work reported now in the PNAS, the Pepys team together with Professor Martin Rossor and colleagues from the Dementia Research Centre of UCL's Institute of Neurology, have shown that the drug also removes SAP from the brains of patients with Alzheimer's disease.

In this first study of the drug in patients with Alzheimer's disease, CPHPC was given to 5 individuals for 3 months. There was the usual depletion of SAP from the blood, seen in all subjects receiving this treatment, but also remarkable disappearance of SAP from the brain. Laboratory tests revealed the molecular mechanism responsible for this unique effect and also disclosed for the first time the way in which SAP accumulates in the brain in Alzheimer's disease.

Administration of CPHPC and the removal of SAP had no side effects in the patients with Alzheimer's disease. CPHPC has also been given for several years to patients with other diseases without any adverse effects. "The safety of CPHPC, together with the novel action of the drug in removing SAP from the brain, is very encouraging", said Professor Rossor.

Although the 3 month treatment period was too short to show any clinical benefit there was no obvious deterioration. Longer and larger scale clinical studies are being planned to confirm safety and seek evidence of benefit to the patients.

"The complete disappearance of SAP from the brain during treatment with CPHPC could not have been confidently predicted" said Professor Pepys, "and the drug, also to our surprise, entered the brain. Coupled with the absence of any side effects, these new findings strongly support further clinical studies to see whether longer term treatment with CPHPC protects against the inexorable mental decline in patients with Alzheimer's disease."

In December 2008 Roche divested CPHPC entirely to Pentraxin Therapeutics Ltd, a UCL spin out company founded by Professor Pepys. In February 2009 Pentraxin Therapeutics Ltd licensed CPHPC to GlaxoSmithKline for treatment of systemic amyloidosis, a rare fatal disease. Pentraxin retains the rights to CPHPC for all other indications.

Source: University College London (news : web)