

Imaging copper trafficking in Alzheimer's disease with PET: potential clinical applications

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United Kingdom

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Research Abstract

Growing evidence suggests that a dysregulation of copper (Cu) metabolism occurs in the brains of those with Alzheimer's disease (AD) and that this dysregulation is a crucial driver of neurodegeneration¹. We will use positron emission tomography (PET) to follow radioactive copper (⁶⁴Cu) in the brain, observing how fast our injected ⁶⁴Cu radiopharmaceutical enters and exits the brain, and where it accumulates. We will investigate this ⁶⁴Cu trafficking in an AD mouse model that develops brain plaques and later compare it to age-matched normals. We

suspect the brain handles Cu differently in AD patients and this abnormal Cu metabolism may occur before memory deficits arise. In addition to PET, we will use X-rays to see where and how much native copper exists in the same brain tissue that we image with PET. The biodistribution of both ^{64}Cu (observed with PET) and native (observed with X-rays) will be matched with standard measures of AD pathology (plaque deposition and memory scores). This study will indicate whether PET imaging of ^{64}Cu can be used to detect early changes in AD before symptoms become apparent. If successful, this method has potential for immediate clinical translation since our ^{64}Cu radiopharmaceuticals have already been used in man.

Further information available at:

Types:

Investments < €500k

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