Clinical severity of Alzheimer's disease is associated with PIB uptake in PET.

BACKGROUND: The positron emission tomography (PET) tracer [11C]-Pittsburgh Compound-B ([11C]PIB) allows the in vivo assessment of amyloid plaque burden in the brain. In a cross-sectional study we examined the association between the severity of dementia assessed using the Clinical Dementia Rating scale sum of boxes (CDR-SOB) and [11C]PIB-PET in patients with Alzheimer's disease (AD). METHODS: Patients with probable AD who had an AD-typical [18F]FDG-PET scan were included. Linear regression analysis in anatomically defined regions-of-interest (ROIs) and correlation analysis using statistical parametric mapping (SPM) were used to determine the association between CDR-SOB and [11C]PIB uptake. RESULTS: The linear regression analyses showed that the CDR-SOB explained approximately 11-22% of the variance of [11C]PIB uptake. The association attained statistical significance in both frontal, in both anterior cingulate cortices, and in both putamina. The SPM analysis showed a significant association in more widespread regions of the brain, with maxima located in similar areas as in the ROI-analysis. CONCLUSION: The CDR-SOB score is significantly associated with [11C]PIB uptake in patients with AD. Thus [11C]PIB is a potential surrogate marker of dementia severity.