New algorithm for analyzing FDG-PET in patients with Alzheimer's Disease

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^{18}F-fluorodeoxyglucose (FDG) is a radiotracer used in positron emission topography (PET) for estimating a degree of hypometabolism in the brain of patients with Alzheimer's disease (AD). Compared to healthy subjects, AD patients demonstrate ~20% of reduction in metabolic activity as revealed by a pharmacokinetic test, however, this is not applicable in clinical practice, therefore, alternative testing methods are urgently needed. Recently, a standardized uptake value ratio (SUVr) was proposed as an image processing algorithm to estimate changes in metabolism, however, SUVr cannot meet the level of hypometabolic criteria shown by the pharmacokinetic tests. In contrast, we created an algorithm that could consistently reveal ~20% of the reduction in metabolic activity in the AD brain. In conclusion, our algorithm likely paves a new way to substitute the pharmacokinetic analysis for estimating metabolic activity in the AD brain.