ADNI Alzheimer's Disease Neuroimaging Initiative

AV-1451 processing methods

Susan Landau & William Jagust
Helen Wills Neuroscience Institute, UC Berkeley and Lawrence Berkeley National Laboratory

Summary

ADNI AV-1451 regional summary data are updated regularly and uploaded to LONI by our group. We use a native-space MRI scan for each subject that is segmented and parcellated with **Freesurfer (version 5.3.0)** to define a variety of cortical and subcortical regions of interest in each subject's native space. We then coregister each AV-1451 scan to its corresponding MRI and calculate the mean AV-1451 uptake within each Freesurfer-defined region.

Method

Acquisition of AV-1451 and MRI image data from LONI

We download AV-1451 data from LONI in the most fully pre-processed format (series description in LONI Advanced Search: "AV1451 Coreg, Avg, Std Img and Vox Siz, Uniform Resolution"). Each subject's pre-processed AV-1451 image is coregistered using SPM5 to that subject's MRI image (series description: ADNI 1 scans *N3;* and ADNI GO/2 scans *N3*) that was closest in time to the AV-1451 scan. Typically the MRI and PET images are within 3 months, but when a concurrent MRI is not available we use an MRI scan acquired at another visit.

Calculation of AV-1451 SUVR

There is currently no consensus on the best way to quantify tau PET image data. We are in the process of investigating strategies for quantifying and staging tau using AV-1451 (e.g. Schöll et al. Neuron 2016). In the meantime the AV-1451 dataset we have made available includes a broad set of regional AV-1451 means and their corresponding Freesurfer-defined volumes (in mm^3). This set includes cortical, subcortical, and WM regions of interest as well as several candidate reference regions such as cerebellar grey matter.

AV-1451 SUVRs can be calculated by dividing a region of interest (with or without an adjustment for regional volume) by a reference region.

References

About the Authors

This document was prepared by Susan Landau, PhD, Helen Wills Neuroscience Institute, UC Berkeley and Lawrence Berkeley National Laboratory. For more information please contact Susan at 510 486 4433 or by email at slandau@berkeley.edu.