Neuropathology Data – Methods

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Summary

The neuropathology data in the ADNI database relevant to Alzheimer disease (AD) are derived from application of the National Institute on Aging-Alzheimer's Association guidelines for the neuropathologic assessment of AD (1). The neuropathologic data may be considered the 'gold standard' against which other clinical, neuropsychological, genetic, neuroimaging and body fluid biomarkers may be compared. Neuropathology data may be used to underpin multimodal studies of the natural history of AD. Data relevant to other neurodegenerative diseases are derived from the application of other appropriate contemporary neuropathologic guidelines.

Methods

Acquisition of Neuropathology Data

Pathological lesions within the brain are assessed using established neuropathologic diagnostic criteria. The NIA-AA criteria recognize that AD neuropathologic change (ADNC) may occur in the apparent absence of cognitive impairment. In accordance with the NIA-AA protocol, an "ABC" score for ADNC is generated from histopathologic assessments of the anatomic distribution of amyloid β plaques (A), the distribution and density (staging) of neurofibrillary tangles (B), and the maximal density of neocortical neuritic plaques (C). In addition, detailed methods for assessing common co-morbid conditions such as Lewy body disease, vascular pathology and associated brain injury, hippocampal sclerosis, argyrophilic grain disease, and TAR DNA binding protein (TDP) immunoreactive inclusions are included (Reference).

Neuropathology data were captured in the format of the Neuropathology Data Form Version 10 or form 11 of the National Alzheimer's Coordinating Center (NACC) established by the National Institute on Aging/NIH (U01 AG016976). The Neuropathology NACC Form Version 11 includes specific questions/prompts to gather information about aging-related tau astrogliopathy (ARTAG). For ADNI cases with information gathered using Neuropathology NACC Form Version 10, the presence of ARTAG is indicated under "OTHER PATHOLOGIC DIAGNOSES." For more information see:

Neuropathology NACC Form Version 10

Neuropathology Coding Guidebook NACC Version 10:
https://www.alz.washington.edu/NONMEMBER/NP/npguide10.pdf

Neuropathology Data Collection Form NACC Version 10:
https://www.alz.washington.edu/NONMEMBER/NP/npform10.pdf

Neuropathology Data Dictionary NACC Version 10:

https://www.alz.washington.edu/NONMEMBER/NP/npded10.pdf

ADNI Alzheimer's Disease Neuroimaging Initiative

Neuropathology NACC Form Version 11

Neuropathology Coding Guidebook NACC Version 11

https://files.alz.washington.edu/documentation/np11-guidebook.pdf

Neuropathology Data Collection Form NACC Version 11:

https://files.alz.washington.edu/documentation/np11-form.pdf

Neuropathology Data Dictionary NACC Version 11:

https://files.alz.washington.edu/documentation/np11-ded.pdf

Dataset Information: This methods document applies to the following dataset(s) available from the ADNI repository:

Dataset Name	Date Posted
NACC Neuropathology Data Form	11-14-2022
NACC Neuropathology Data Form Dictionary	11-14-2022

Reference: Montine TJ, et al. National Institute on Aging - Alzheimer's Association guidelines for the neuropathologic assessment of Alzheimer's disease: a practical approach. *Acta Neuropathol*. 2012; 123: 1-11.

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