The Uncovering Neurodegenerative Insights Through Ethnic Diversity consortium

We would like to encourage researchers and clinicians worldwide to join the Uncovering Neurodegenerative Insights Through Ethnic Diversity (UNITED) consortium, especially those from under-represented regions (eg, Africa, Asia, and South America).

The UNITED consortium is a new collaboration that aims to answer the question, what does the diseased brain look like? The primary objective is thus to create brain maps of various neurodegenerative disorders, particularly focusing on detailed imaging markers that describe the structure of the brain using thousands of measures—analogous to the millions of genetic variants in genome-wide association studies. To date, the UNITED consortium consists of over 65 000 neuroimaging samples, but we aim to have 500 000 samples by 2022. Most of the current samples are from well characterised cohorts across Europe and North America, but more diversity in study populations can uncover insights that are not apparent in a homogeneous sample, as illustrated by multiethnic genetic studies.[1] Also, collecting similar results using multiple study designs (both with retrospective and prospective analyses) can increase confidence in our results.

Neurodegenerative disorders are complex and lead to substantial morbidity and mortality. Given their multifactorial nature, big data such as that collected in neuroimaging and genetic studies hold great promise in revealing underlying causes of such disorders. The era of genome-wide association studies has undeniably taught us that international collaboration leads to reproducible and generalisable findings and surpasses isolated efforts.[2] Additionally, in the field of neuroimaging, several laudable initiatives exist aimed at facilitating international cooperation, including the World Wide Alzheimer's Disease Neuroimaging Initiative, The Global Alzheimer's Association Interactive Network, and The Enhancing Neuro Imaging Genetics Through Meta-Analysis Network.[3-5] Although our knowledge on the genetic architecture of neurodegenerative disorders is constantly being updated with larger meta-analyses of genome-wide association studies (eg, studying 600 000 individuals for Alzheimer's disease),[6] no coordinated effort is being undertaken to map their morphological architecture via meta-analyses of neuroimaging data. In fact, the largest neuroimaging meta-analysis done to date was in the context of a genome-wide association study led by genetics consortia.[7]

The UNITED consortium welcomes all study designs, including case-control studies, cohort studies, and case-only studies, or even control-only cohort studies. Collaborators do not necessarily need to provide data but can also contribute with ideas and methods. The diversity of such data, from study design to image acquisition and analysis, will pose challenges. To overcome these challenges, the UNITED consortium is supported by an international advisory board with expertise on epidemiology, neurology, and neuroimaging. All brain maps from this effort will immediately be made publicly available, and hopefully result in a valuable resource for subsequent use.

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