Intrinsic brain activity of cognitively normal older persons resembles more that of patients both with and at risk for Alzheimer’s disease than that of healthy younger persons.

Abstract:

In Alzheimer’s disease (AD), recent findings suggest that amyloid-β (Aβ)-pathology might start 20-30 years before first cognitive symptoms arise. To account for age as most relevant risk factor for sporadic AD, it has been hypothesized that lifespan intrinsic (i.e., ongoing) activity of hetero-modal brain areas with highest levels of functional connectivity triggers Aβ-pathology. This model induces the simple question whether in older persons without any cognitive symptoms intrinsic activity of hetero-modal areas is more similar to that of symptomatic patients with AD or to that of younger healthy persons. We hypothesize that due to advanced age and therefore potential impact of pre-clinical AD, intrinsic activity of older persons resembles more that of patients than that of younger controls. We tested this hypothesis in younger (ca. 25 years) and older healthy persons (ca. 70 years) and patients with mild cognitive impairment and AD-dementia (ca. 70 years) by the use of resting-state functional magnetic resonance imaging, distinct measures of intrinsic brain activity, and different hierarchical clustering approaches. Independently of applied methods and involved areas, healthy older persons' intrinsic brain activity was consistently more alike that of patients than that of
younger controls. Our result provides evidence for larger similarity in intrinsic brain activity between healthy older persons and patients with or at-risk for AD than between older and younger ones, suggesting a significant proportion of pre-clinical AD cases in the group of cognitively normal older people. The observed link of aging and AD with intrinsic brain activity supports the view that lifespan intrinsic activity may contribute critically to the pathogenesis of AD.

Zeitschriftentitel / Abkürzung:
Brain Connect

Jahr:
2014

Band:
4

Heft / Issue:
5

Seiten:
323-36

Sprache:
eng

Pubmed:

Print-ISSN:
2158-0014

TUM Einrichtung:
Klinik und Poliklinik für Psychiatrie und Psychotherapie; Abteilung für Neuroradiologie; Nuklearmedizinische Klinik und Poliklinik

Occurences:
- Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Klinik und Poliklinik für Nuklearmedizin > 2014
- Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Klinik und Poliklinik für Psychiatrie und Psychotherapie > 2014
- Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Institut für Radiologie > Fachgebiet Neuroradiologie (Prof. Zimmer) > 2014

entries: