Dementia

Definition

Loss of intellectual abilities previously attained (memory, judgment, abstract thought, and other higher cortical functions) severe enough to interfere with social and/or occupational functioning [1].

Memory deficit is the cardinal feature, however, the DSM-IV definition requires impairment in at least one other domain (language, perception, visuospatial function, calculation, judgment, abstraction, problem-solving skills) [2].

Epidemiology

Dementia Epidemiology.

Classification

see Alzheimer's disease dementia

see Dementia pugilistica.

see Lewy body dementia.

see Frontotemporal dementia

see Parkinson's Disease Dementia

see Vascular dementia.

see Idiopathic normal pressure hydrocephalus dementia.

Diagnosis

Dementia diagnosis

Differential diagnosis

Normal pressure hydrocephalus (NPH) plays a role in the differential diagnosis of dementia for more than 50 years as Hakim and Adams described three patients in 1965 who had ventriculomegaly on pneumoencephalography but had no increase in their intracranial pressure (ICP) [3].

Treatment

see Dementia treatment.

Outcome

At the global level, dementia is the leading cause of dependence and disability among the elderly.

Screening

Canonical definitions of the dementia construct encompass deficits in both cognition and function, but most screening instruments for possible dementia address only cognitive abilities. Free-Cog is a recently described brief screening instrument for dementia designed to address not only cognitive but also functional abilities.

A pragmatic test accuracy study of Free-Cog was undertaken in consecutive patients seen over 1 year in a secondary care setting. The performance of Free-Cog for diagnosis of dementia and mild cognitive impairment (MCI) was compared to that of Mini-Addenbrooke's Cognitive Examination (MACE).

In a cohort of 141 patients (prevalence of dementia and MCI 11 and 32%, respectively) both Free-Cog and MACE were quick and easy to use and acceptable to patients. Both tests had high sensitivity (1.00) and large effect sizes (Cohen's d) for diagnosis of dementia, but Free-Cog was more specific. For diagnosis of MCI, Free-Cog lacked sensitivity (0.58) but was specific (0.81), whereas MACE was sensitive (0.91) but not specific (0.35). Weighted comparison suggested equivalence for dementia diagnosis but a net benefit for MACE regarding MCI diagnosis.

Free-Cog is an acceptable and accurate test for dementia screening in a dedicated cognitive disorders clinic, but it appears less sensitive than MACE for the identification of MCI [4].

Case series

Liu et al., aimed to evaluate the sex differences in the prevalence of nonvascular cognitive impairment and the risk factors among the elderly in rural China screened with the Mini-Mental State Examination (MMSE).

Between 2014 and 2015, a population-based cross-section study was conducted to collect basic information among the elderly aged 60 years and over. Those participants with the previous history of stroke or heart disease were excluded in this study. Nonvascular cognitive impairment was assessed using the MMSE scores.

The prevalence of cognitive impairment was 32.4% overall, 25.6% in men and 38.1% in women. In the multivariate analysis, older age and lower education were risk factors both in men and in women; older, large waist circumference was a protective factor for cognitive function in men; higher blood pressure was the risk factor in women.

These findings suggest that it is crucial to manage and control hypertension and improve educational attainment in order to reduce the prevalence and burden of nonvascular cognitive impairment among low-income residents, both men and women, in rural China [5].

Tabei et al., aimed to determine whether neuropsychological deficits and brain atrophy could predict the efficacy of non-pharmacological interventions. Forty-six participants with mild-to-moderate dementia were monitored for 6 months; 25 underwent an intervention involving physical exercise with music, and 21 performed cognitive stimulation tasks. Participants were categorized into improvement (IMP) and no-IMP subgroups. In the exercise-with-music group, the no-IMP subgroup performed worse than the IMP subgroup on the Rivermead Behavioural Memory Test at baseline. In the cognitive-stimulation group, the no-IMP subgroup performed worse than the IMP subgroup on

Raven's Colored Progressive Matrices and the cognitive functional independence measure at baseline. In the no-IMP subgroup, voxel-based morphometric analysis at baseline revealed more extensive gray matter loss in the anterior cingulate gyrus and left middle frontal gyrus in the exercise-with-music and cognitive-stimulation groups, respectively. Participants with mild-to-moderate dementia with cognitive decline and extensive cortical atrophy are less likely to show improved cognitive function after non-pharmaceutical therapy [6].

Research

Dementia research.

References

1)
Consensus Conference. Di erential Diagnosis of Dementing Diseases. JAMA. 1987; 258:3411–3416
2)
Fleming KC, Adams AC, Petersen RC. Dementia: Diagnosis and Evaluation. Mayo Clin Proc. 1995; 70:1093–1107
3)
Hakim S, Adams RD. The special clinical problem of symptomatic hydrocephalus with normal cerebrospinal fluid pressure. Observations on cerebrospinal fluid hydrodynamics. J Neurol Sci. 1965 Jul-Aug;2(4):307-27. PubMed PMID: 5889177.
4)
Larner AJ. Free-Cog: Pragmatic Test Accuracy Study and Comparison with Mini-Addenbrooke's Cognitive Examination. Dement Geriatr Cogn Disord. 2019 Jul 17:1-10. doi: 10.1159/000500069. [Epub ahead of print] PubMed PMID: 31315124.
5)
Liu W, Wu Y, Bai L, Ni J, Tu J, Liu J, Deng Q, Ning X, Wang J. Sex Differences in the Prevalence of and Risk Factors for Nonvascular Cognitive Function in Rural, Low-Income Elderly in Tianjin, China. Neuroepidemiology. 2018 Aug 9;51(3-4):138-148. doi: 10.1159/000490496. [Epub ahead of print] PubMed PMID: 30092579.
6)
Tabei KI, Satoh M, Ogawa JI, Tokita T, Nakaguchi N, Nakao K, Kida H, Tomimoto H. Cognitive Function and Brain Atrophy Predict Non-pharmacological Efficacy in Dementia: The Mihama-Kiho Scan Project2. Front Aging Neurosci. 2018 Apr 12;10:87. doi: 10.3389/fnagi.2018.00087. eCollection 2018. PubMed PMID: 29706882; PubMed Central PMCID: PMC5906569.