

Should the word 'dementia' be forgotten?

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...Last scene of all,
That ends thus strange eventful history,
Is second childishness, and mere oblivion,
Sans teeth, sans eyes, sans taste, sans everything.
W. Shakespeare, *As You Like It*.

About two years ago, D. L. Trachtenberg, the caregiver of a female patient with progressive cognitive impairment due to a neurodegenerative disorder, and J. Q. Trojanowski, Professor of Geriatric Medicine and Gerontology and director of the Center for Neurodegenerative Disease Research at Penn University School of Medicine, Philadelphia, PA, USA, one of the leading researchers in neurodegenerative disorders, presented a rationale for the elimination of the pejorative and harmful word *dementia* as a diagnostic term widely used in medicine and science. They offered a more meaningful and non-stigmatizing terminology, *e.g.* to change the meaning of frontotemporal dementia to frontotemporal disease [1].

This proposal appears meaningful and appropriate in order to avoid stigmatization of the complex disorders causing cognitive disorders for patients, caregivers and physicians. However, as frequently in science and everyday life, it will be different to eradicate/eliminate a word widely used in both scientific/medical and lay language, since this term is widely fixed in the mind of people. The following statement will briefly discuss the pros and cons related to this problem.

The term 'dementia' (ICD 10. F 00–F 07), originating from the Latin word 'demens', originally meaning 'madness' from de- 'without' mens (meaning senseless or 'being out of one's mind'), is not a specific disorder or disease, but a description for a syndrome (group of symptoms) associated with progressive loss of memory and other cognitive/intellectual functions that are severe enough to interfere with the tasks of daily life, lasting more than 6 months, but not present since birth, and not associated with loss of consciousness [2, 3]. Similar definitions are to be found in several encyclopaedias [4–7]. Lishman defined dementia as 'an acquired global impairment of intellect, memory, and personality, but without impairment of consciousness' [8], while, according to others, it is an acquired, persistent, more or less global impairment of intellectual, emotional, conative and cognitive functions due to biochemical or diffuse structural disease of the brain, occurring in the alert state and leading to functional incapacity [9]. The word

dementia was first used in the modern sense by the French psychiatrist Pinel, before which time it was taken to mean all kinds of mental disease. The German psychiatrist Kraepelin later distinguished the schizophrenias and depressive reactions, while keeping the word *dementia* as their prefix [9]. Definition of dementia varies. It has recently been redefined as the differential manifestation of deteriorating brain functions overtime as a part of aging due to cell deaths in the brain caused by neurodegeneration or any other cause [10]. The *Merriam-Webster Online Dictionary* of 2004 defined it first as 'mental dysfunction of organic or functional origin' [11], supplying the following synonyms for a mental illness or disorder impairing a person's capacity to function normally and safely from *Roget's Thesaurus: brainsickness, craziness, insane-ness, insanity, lunacy, madness, mental illness, psychopathy, unbalance*. These and other definitions, but, in general, not the medical diagnosis, are most commonly known to the public. Accordingly, persons diagnosed as having dementia might be seen by the lay community as being out of their mind or crazy.

Dementia encompassing deterioration in several cognitive domains is very common and accompanies many neurological as well as systemic diseases. The array of syndromes arising from damage to the neuronal circuitry underlying cognition can be as bewildering as the terminology. Cognitive impairment is a useful umbrella term which encompasses severe dementia of late stage degenerative diseases as Alzheimer's disease (AD), mild cognitive slowing due to sedative drugs, confusional states or delirium in the severely systemically ill, but a useful distinction, easier in theory than in practice, is the distinction between delirium and dementia [12].

Dementia is an issue of enormous medical and socioeconomic significance in societies with aging population [13]. The risk of dementia at age 65–100 years for men is 33%, for women 45%. The prevalence and incidence of dementia increase exponentially with age: the prevalence of dementia of all causes increases between the 7th and 10th decade from 0.3–1.0% to 43–69%; its incidence from 0.8–4.0/1000 person/years (p/y) to 50–135/ 1000 p/y [14–16]. Dementia rates (in millions) 2000 in Europe, China and the world were 7, 4 and 28, respectively; in 2020 in Europe, Asia-Pacific and the world will be 14, 27 and 55, respectively and in 2050 it will be 16–20, 65 and 100, respectively. More impressive is the change in the ratio working *versus* demented people. In 2008 in Europe and China it was 69:1 and 230:1; in 2050 the relation will be 21:1 and 36:1, respectively (J. Attems, personal communication).

Consensus criteria for the clinical diagnosis of major dementing disorders exist and have recently been revised and updated (see [17]). Diagnostic criteria were widely applied, establishing AD as the

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predominant cause of senile cognitive impairment, a course of action aptly referred to as "alzheimerization" of dementia [18]. Clinical diagnostic accuracy using revised consensus criteria and newly developed biochemical and neuroimaging markers range from 65% to 96% for AD, with a diagnostic specificity *versus* other dementias of 23–88%, which will be increased by using novel CNS biomarkers for AD and MCI [19]. Neuropathological/post-mortem assessment using molecular biology and immunohistochemistry, homogeneous definitions, harmonized inter-laboratory methods and assessment standards, can identify 54–97% of AD cases and can eliminate 62–100% of non-demented subjects, but only between 8% and 42% of non-AD dementias, without, however, being able to clarify the aetiology and causes of most of these disorders [20]. Recent studies suggest that dementia in the oldest-old (90+ years of age) is only modestly related to AD, while cerebrovascular lesions may cause cognitive impairment in most elderly subjects with low Alzheimer pathology scores [17, 18, 22]. However, there may be no evidence for a certain number of elderly subjects having dementia without an apparent causative morphologic background [17, 21].

Since there is considerable clinical and morphological overlap between many of the disorders associated with cognitive impairment, the reliability and clinical relevance of the correct diagnostic criteria need better qualification and validation in order to increase the accuracy and reproducibility of the diagnosis of these disorders. It should be recognized that until now, neurodegenerative cognitive

disorders, like AD, are incurable but preventable, when using recommendations of modern evidence-based medicine [22, 23].

In conclusion, it is important to realize that cognitive impairment or dementia is a syndrome caused by many different disorders, which, at least in some cases may be reversible if the correct diagnosis of the cause is made and treated. In this respect, the word 'dementia', although suggested to be pejorative and harmful could be maintained at least in the scientists' and physicians' terminology. Otherwise it could be replaced by the more indifferent word *cognitive impairment* [12] or the more generalizing expression *cognitive disorder*, as it is currently used for 'vascular dementia' or 'vascular cognitive impairment' [24, see 25]. Although, in accordance with Trachtenberg and Trojanowski [1], we recommend a convenient and compassionate substitution of the word 'dementia' by a less harmful expression, the major challenge for modern neuroscience and medicine is to intensify research into the multiple changes that underpin AD and other causes of cognitive disorders, their molecular and genetic backgrounds, the basic etiological factors, the interrelationships of various concurrent pathologies and their risk factors, in order to enable better prevention and further successful treatment of these disorders.

Conflict of interest

The authors confirm that there are no conflicts of interest.

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