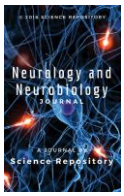

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Review Article

Hidden Factors in Diagnosing Alzheimer's Disease

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ABSTRACT

Diagnoses of Alzheimer's, dementia and other mental health conditions using the "family history method" can often be inaccurate, biased and possibly ill-motivated. Definitive clinical testing and/or biological tests rarely exist for most mental illnesses. Even when tests (such as PET scans or excess Abeta42 in cerebral spinal fluid indicating presence of neuronal plaques, for example) and other suggestive biomarkers are "positive", there are often no outward cognitive-behavioural symptoms or symptomatic evidence associated with the alleged mental illness (and vice-versa). Furthermore, environmental stressors, dehydration and other fully curable illness and treatable issues such as urinary tract infections, delirium, drug interactions and insomnia can quickly create outward 'false' symptoms of mental illnesses, often mistaken for true mental health diagnoses. Therefore, a comprehensive consideration of ex parte narratives, experience, familiarity and also possible underlying motivations, of even the most well-meaning family members in the "family history method" of mental illness diagnoses, currently used by doctors and other professionals, should be revisited.

When a patient is diagnosed with Alzheimer's disease (often referred to as dementia), what criteria are used to make the diagnosis? Rising incidence rates suggest that up to 20 million Americans will suffer from dementia by 2050. But, are all diagnoses correct? Consider the common issue of dehydration as a masking factor in dementia diagnoses of elderly individuals. Dehydration can quickly lead to delirium that can be mistaken for full-blown dementia, including symptoms such as disorientation, lack of focus, memory problems, aggression, agitation, and wandering [1, 2]. A Johns Hopkins geriatric psychiatrist said, "It's not (only) the pill we give them that creates the clinical effect (of reducing symptoms of delirium); it's the water they drink it down with." Increasing hydration can reduce delirium, illustrating that delirium, unlike Alzheimer's disease, is preventable and treatable [1, 3, 4].

Other conditions can also create deceptive symptoms that are commonly mistaken for Alzheimer's disease, including infections, anxiety, depression, recent surgery, analgesics, single doses of pharmaceuticals (or more complex drug interactions), and malnutrition. Any of these factors can lead to symptoms of delirium, that pair directly with symptoms of Alzheimer's disease, and lead to false diagnoses of dementia.

Unlike diagnoses of infection or other decisive conditions, there are no definitive clinical tests for dementia. The popularly used MMSE (mental health test) has ceiling effects (one can easily memorize answers to pass) and the test accurately screens only severe cases [5-7]. The MMSE test has many confounding biases in application, especially when patients, who have abundant plaques and tangles in the brain, test as being perfectly normal. During most formal assessments, however, "diagnosis by proxy" has become the main criteria for making diagnoses of dementia.

Once diagnosed with dementia, the patient often loses access to financial, mental and geographic rights and freedoms [8]. Power of attorney is granted, forced drugging is initiated (especially when the patient contests the diagnosis) and patients can be locked in psychiatric ward housing. However, research shows that diagnosis of dementia by a single family member is only about 15% accurate and diagnosis based on input from 4 family members together only reaches a 64% accuracy [9-11]. Another study shows only 48% agreement between family

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members in diagnosing dementia [12]. How accurate are family members and friends who often serve as proxy diagnosticians regarding the diagnosis of Alzheimer's disease?

Alzheimer's disease is not the only clinically ambiguous mental health condition that is diagnosed using input from family members. Bipolar disease, ADD, ADHD or even forms of autism in children that are difficult to diagnose, have symptoms related to anxiety, stress, noisy home environments, poor nutrition, and often depend on proxy diagnoses. Diagnosis of these conditions can also lead to stigma, forced drugging, loss of estate, and locked psychiatric wards. Unfortunately, due to reliance on diagnostic proxy, the patients themselves are often ignored throughout a diagnostic process that often takes place completely away from the patient [13, 14].

To increase the accuracy of mental health diagnoses, one suggestion is to educate doctors about the variations in proxy diagnosis accuracy and reliability [15]. Perhaps it is best, prior to patient diagnosis, for doctors to screen the proxies themselves [12]. Dementia diagnosis can lead to transfers of financial power of attorney to the same family proxies who contribute directly to the primary diagnosis. When money and property is involved, even the most well-intentioned estate recipient may become biased. A thorough screening of proxies may be a timely stage in the physician's dementia diagnostic process [16].

When DNA screening was introduced into the legal system, thousands of accused criminals were (and continue to be) exonerated and freed. Perhaps when diagnosis of dementia, bipolar disease, autism, ADHD and other mental health issues are clarified, many patients may be exonerated from proxy-based diagnoses - and also freed from forced drugging, incarceration, loss of finances, careers and belongings [17, 18]. Diagnoses of many mental health conditions are often very vague, lacking definitive clinical testing integrity and validity. Doctors' primary responsibility then is to screen for all non-dementia potential influences (dehydration, anxiety, drug interactions) and delve deeper into possible underlying issues or driving motivations in family members, friends or even neighbour proxy informants that currently play so decisively into diagnoses.

References

1. Inouye SK, Foreman MD, Mion LC, Katz KH, Cooney LM Jr (2001) Nurses' recognition of delirium and its symptoms: comparison of nurse and researcher ratings. *Arch Intern Med* 161: 2467-2473. [Crossref]
2. Inouye SK (2006) Delirium in older persons. *N Engl J Med* 354: 1157-1165. [Crossref]
3. Kerola T, Kettunen R, Nieminen T (2011) The complex interplay of cardiovascular system and cognition: how to predict dementia in the elderly? *Int J Cardiol* 150: 123-129. [Crossref]
4. Wilson MM, Morley JE (2003) Impaired cognitive function and mental performance in mild dehydration. *Eur J Clin Nutr* 57: S24-S29. [Crossref]
5. Nieuwenhuis Mark RE (2010) The death knoll for the MMSE: has it outlived its purpose? *J Geriatr Psychiatry Neurol* 23: 151-157. [Crossref]
6. Franco Marina F, García González JJ, Wagner Echeagaray F, Gallo J, Ugalde O et al. (2010) The Mini-mental State Examination revisited: ceiling and floor effects after score adjustment for educational level in an aging Mexican population. *Int Psychogeriatr* 22: 72-81. [Crossref]
7. Hoops S, Nazem S, Siderowf AD, Duda JE, Xie SX et al. (2009) Validity of the MoCA and MMSE in the detection of MCI and dementia in Parkinson disease. *Neurology* 73: 1738-1745. [Crossref]
8. Link BG, Phelan JC, Bresnahan M, Stueve A, Pescosolido BA (1999) Public conceptions of mental illness: labels, causes, dangerousness, and social distance. *Am J Public Health* 89: 1328-1333. [Crossref]
9. Zimmerman M, Coryell W, Pfohl B, Stangl D (1988) The reliability of the family history method for psychiatric diagnoses. *Arch Gen Psychiatry* 45: 320-332. [Crossref]
10. Thompson WD, Orvaschel H, Prusoff BA, Kidd KK (1982) An evaluation of the family history method for ascertaining psychiatric disorders. *Arch Gen Psychiatry* 39: 53-58. [Crossref]
11. Chapman TF, Mannuzza S, Klein DF, Fyer AJ (1994) Effects of informant mental disorder on psychiatric family history data. *Am J Psychiatry* 151: 574-579. [Crossref]
12. Gershon ES Guroff JJ (1984) Information from relatives: diagnosis of affective disorders. *Arch Gen Psychiatry* 41: 173-180. [Crossref]
13. Ryan T, Arnold BB, Bonython W (2015) Protecting the Rights of Those with Dementia Through Mandatory Registration of Enduring Powers: A Comparative Analysis. *Adel L Rev 36*: 355.
14. Jorm AF (2004) The Informant Questionnaire on cognitive decline in the elderly (IQCODE): a review. *Int Psychogeriatr* 16: 275-293.
15. Boustani M, Callahan CM, Unverzagt FW, Austrom MG, Perkins AJ et al. (2005) Implementing a screening and diagnosis program for dementia in primary care. *J Gen Intern Med 20*: 572-577. [Crossref]
16. Lyketsos C (2008) Dementia and milder cognitive syndromes. In The American Psychiatric Publishing Textbook of Geriatric Psychiatry, 4th Edition. *American Psychiatric Publishing Inc.*
17. O'Connor v Donaldson, 422 U.S. 563 (1975) 95 S.Ct. 2486, 45 L.Ed.2d 396.
18. Packard EPW, Olsen SN (1871). The Prisoners' Hidden Li, Or Insane Asylums Unveiled: As Demonstrated by the Report of the Investigating Committee of the Legislature of Illinois, Together with Mrs. Packard's Coadjutors' Testimony. *JN Clarke*.