

BRINGING DEMENTIA-CARE BACK INTO PSYCHIATRY

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Abstract

Dementia with over 46 million people suffering from it, has become an illness which cannot be ignored. The confusion regarding whether dementia is a neurological or a psychiatric illness has been existing for long. Traditionally, dementia has been viewed as a neurological illness with the organicity of the same being given utmost importance. However, we cannot ignore the vast contribution of psychiatry in the discovery of dementia. Also, the new concept regarding psychiatric and neurological illnesses has challenged the fact that dementia is a completely neurological illness, especially considering the vast similarities between psychiatric disorders and dementia. This confusion regarding whether it is a neurological or a psychiatric illness has created difficulty in the management of these patients. The similarities between dementia and psychiatric disorders are visible at the level of localization of lesions, the symptoms, especially the behavioral and the psychotic symptoms, the methods of diagnosis and the treatment strategies, especially the non-pharmacological ones, which are in fact more effective than the pharmacological strategies. The non-pharmacological aspects include not only behavioral strategies, but also focus on breaking the bad news, addressing the care-giver burden and the legal aspects. All this puts the psychiatrist at an advantage in treating these patients, when compared to other specialists, given our expertise with history taking, mental status examination, the pharmacological management of the behavioral issues and especially the non-pharmacological aspects.

Key words: Dementia, Care, India

INTRODUCTION:

The word dementia has been derived from a latin word 'dementatus', which means 'out of one's mind'. According to Kaplan and Saddock, it is a disease process marked by progressive cognitive impairment in clear consciousness¹.

The common subtypes of irreversible dementia are Alzheimer's disease, vascular dementia, Lewy body and Fronto-temporal dementias. Alzheimer's disease, the most common amongst them (50-75%) has gradual onset impairment in memory, with cortical amyloid plaques and neurofibrillary tangles being the main pathological characteristics. Vascular dementia (20-30%) has more prominent mood fluctuations and strong history of cardiovascular complications. It is characterized by the step-wise progression, single infarcts in critical brain regions or a more diffuse, multi-infarct picture. 5-10% of the patients suffer from Frontotemporal dementia, which is characterized by affective, behavioral or

psychotic symptoms manifesting ahead of frank memory deterioration and often gets misdiagnosed as major depressive disorder or psychosis before memory changes manifest. Lewy Body dementia with < 5% prevalence, in which alpha-synuclein cortical Lewy bodies can be seen in the brain, presents with cognitive fluctuations, visual hallucinations, neuroleptic sensitivity and parkinsonian features².

In patients aged < 65years, as per Harvey et al., 34% of patients suffered from Alzheimer's dementia, 18% from vascular dementia, 12% from fronto-temporal dementia, 10% from alcohol related dementia, 7% from lewy-body dementia, 5% from dementia due to Huntington's disease and 14% due to other causes³.

Over 46 million people worldwide have been affected by dementia and it has a 5-7% prevalence in > 60 year old age group, which further increases to 15 to 20 % in the 75 to 80 years age group and 40 to 50 % in the > 85 years age group. According to the World Alzheimer Report 2015, one new case of dementia is being diagnosed every 3 seconds, with the majority of patients residing in mostly low and middle income nations (58%). In fact, the same report predicts that this pattern is only going to continue, with the figures increasing to 63% in 2030 and 68% in 2050. Nearly 22.9 million people with dementia live in Asia, followed by 10.5 million in Europe, 9.4 million in the Americas and 4 million in Africa. A meta-analysis by Prince et al., in 2013 showed that the maximum standardized prevalence of dementia is in Eastern Europe (6.92/1000), followed closely by Australasia (6.91), South East Asia (6.38) and the Americas. Many studies have evaluated the prevalence of dementia in India also. A systematic review by Das SK, 2012 revealed that prevalence rates as per various studies vary from 0.8 % to 3.54 % in the geriatric population, with increasing rates of prevalence being reported from the Southern states.^{4, 5, 6, 7, 8, 9.}

As per World Alzheimer's Report, 2015, the total world-wide estimated cost as of 2015 is nearly 818 million US dollars, and the cost is expected to skyrocket to nearly 2 trillion US dollars by 2030.

THE GREY ZONE: IS DEMENTIA A NEUROLOGICAL OR A PSYCHIATRIC DISEASE?

Neurological and psychiatric illnesses often have very deceptive boundaries, with each often slipping into the realm of the other. The difficulty in distinguishing between the two is therefore quite understandable. Neurological illnesses have been classically assumed to be 'Organic'/ disorders of the brain, with close links to biology and similarity to internal medicine, clear cut neuroanatomical and neurophysiological correlates and mostly require neuroimaging techniques (MRI, SPECT) or biomarkers to establish the diagnosis. Whereas, on the other hand, psychiatric disorders are supposed to have no structural basis, are defined as "disorders of the mind", have close links to socioeconomic, familial, and interpersonal relationships, with symptoms not corresponding to known neurological pathways and diagnosis mostly based on history and mental status examination. When we go by this concept, then dementia being a degenerative brain disease involving deposition of proteins or cardiovascular origin in many (so called structural changes), neuroanatomical and neurophysiological correlates and often requiring neuroimaging techniques to diagnose, fulfills the criteria to be diagnosed as a "neurological" disease. Or so it was assumed to be.^{10.}

However, the importance of psychiatry in the evolution of dementia cannot be underestimated. As we trace the roots of dementia, it was the founder of modern Psychiatry, Philippe Pinel (1745–1826) who was one of the first to describe this illness. Jean Etienne Dominique Esquirol, the famous French psychiatrist who belonged to the 19th century described it in his treatise, Mental Maladies: A Treatise

on Insanity, and attempted to distinguish between the cognitive impairment due to dementia and that secondary to mental illness. He also described hallucinations, delusions, aggressive behavior, and motor impairments in patients with dementia and his famous words “a demented man has lost the goods he used to enjoy; he is a wealthy person turned poor” reveals the destruction wrought by this illness. It was Wilhelm Griesinger, German neurologist and psychiatrist, in 1845 who first postulated that dementia is a disease of the cerebral arteries, alluding to the vascular causes of dementia, a fact that has been demonstrated thoroughly. Emil Kraepelin, who famously dedicated his life to the study of schizophrenia, was Griesinger’s student. Kraepelin differentiated senile dementia from that arising due to psychoses with cerebral arteriosclerosis (dementia praecox / schizophrenia). Pick, a Czech psychiatrist, described in 1892 Pick’s disease and in 1907, Alois Alzheimer, German psychiatrist and neurologist was the first to identify specific histo-pathological changes associated with progressive degenerative dementia. Thus, if we retrospect, then it is justified to suggest that dementia could not have been discovered if not for psychiatry.¹¹

Also, the above mentioned “classical” concept of distinguishing between psychiatric and neurological illnesses has gone through a rather extensive and much awaited change over the years, owing to years of research and progress involving the two fields, psychiatry in particular. The current concept of the distinction between psychiatric and neurological disorders is far different from the old concept. The firm distinction between the two specialties seems to be blurring with scientific advancement. The current understanding can be surmised, as follows:^{12, 13, 14, 15, 16.}

- Distinction between structural and functional is less clear and morphologic correlates of psychiatric illnesses can and have been identified.
- The old concept considered that only neurology has close links to biology and similarity to internal medicine. The current understanding unveils that both are close to biology and like in psychiatry, socioeconomic, familial and interpersonal relations are important in neurology too.
- It was considered that neurological illnesses have defined neuroanatomical and neurophysiological correlates, while psychiatric symptoms do not correspond to known neurological pathways. But, as suggested before, structural correlates of psychiatric illnesses exist. However, it is prudent to explain that one to one association is rare and that overall, psychiatric illnesses are more complex by nature and origin, whereas neurological disorders and brain regions have a more one-to-one correlation. It has been shown via voxel-based morphometry, as per a meta-analysis by Crossley in 2014, that basal ganglia, insula, motor plus sensory pathways and dorsal prefrontal region involvement are more suggestive of a neurological disorder, whereas medial prefrontal region, visual association cortex and lingual cortex involvement are more suggestive of psychiatric disorder.¹⁴
- In neurological disorders, motor, sensory and cognitive changes are more significant, and diagnosis depends largely on examination, neuroimaging and biomarkers whereas psychiatric disorders focus mostly on the behavioral abnormalities, affective and cognitive changes and diagnosis is largely dependent on history and mental status examination. Neuroimaging, especially the more advanced and finer techniques like functional MRI are useful in psychiatric disorders, though psychiatrists seldom rely solely upon them for treatment or diagnosis. Research is underway on making biomarkers and newer techniques

like imaging genetics a viable diagnostic option for diagnosing psychiatric disorders, and the progress is slow but promising.

- Management of neurological and psychiatric disorders are quite different from each other.

This new concept regarding the distinction between neurologic and psychiatric disorders makes one rethink whether dementia falls in the realm of neurology, as suggested explicitly by the classical concept or psychiatry. The brain regions involved/ structural correlates, the symptoms, the mode of diagnosis and the management in dementia can help one attempt to resolve this confusion.

Relation between brain regions and symptoms: Like psychiatric disorders, wherein there is no one-to-one relation between the brain regions and the symptoms, it is very difficult to attribute the symptoms of dementia to one particular brain region. Often, patients present with a multitude of symptoms that are quite confusing and difficult to pin point to discrete brain regions.

Symptom focus: As stated before, neurological disorders involve more of motor, sensory and cognitive changes, whereas psychiatric disorders focus mainly on the behavioral abnormalities, affective and cognitive changes. The symptomatology of dementia involves cognitive, behavioral, affective and psychotic symptoms, similar to psychiatric disorders. Nearly all elderly individuals with dementia will develop psychiatric symptoms within 5 years, which commonly includes apathy, depression, anxiety, and, often, combinations of these and other symptoms. In a study conducted by Tractenberg in 2003, agitation and psychotic symptoms were found in 77% and 69% of the sample (n=148).^{18, 19} As per a critical review by Seignourel et al in 2008, 5-21% and 8-71% of dementia patients have anxiety disorders and symptoms respectively.²⁰ 11.8%- 25% of patients were found to have MDD and 78% were found to have depressive symptoms according to a few older studies. Fronto-temporal dementia presents as combination of socially offensive behaviors, such as indifference, impatience, carelessness, jocularity, intrusiveness, distractibility etc. and in fact, many patients do not have noticeable cognitive deficits until illness is fully established, which may take months to years. Also, in Lewy body Dementia, visual illusions and hallucinations develop early; are persistent and are associated with misidentification, paranoia, delusions, and anxiety.^{21, 22.}

Risk factors: It is well established that medical risk factors are significant in development of dementia. For instance, there is an exponential increment in prevalence of dementia with age (doubles with every 5 year increase), 75% of people diagnosed are of female gender, genetic predisposition in form of presence of $\alpha\beta$ precursor protein, presenilin 1, and presenilin2 with < 5% cases of AD being familial (autosomal dominant) and apolipoprotein e4 being a genetic risk modifier. The presence of vascular risk factors is of supreme significance, with hypertension (OR= 1.97), obesity (OR=2.09), dyslipidemia (OR= 1.89) diabetes mellitus (HR=1.5), smoking (HR=2.14), and heart diseases being well established risk factors. Surprisingly, research has also shown that psychiatric risk factors for dementia also exist. It has been found to be linked to isolation and loneliness, poor sleep and history of depression.^{23, 24, 25,} As per Zilkens et al, there is increased risk of developing dementia in patients who suffer from psychiatric disorders, including unipolar depression, bipolar disorder, dysthymia, schizophrenia spectrum disorder, anxiety disorder and alcohol dependence, with maximum risk with bipolar disorder (OR= 6.56)²⁶. There is increased risk of dementia with some personality disorders (narcissistic and Cluster C) too.^{27.}

Diagnosis: Similar to psychiatric disorders, diagnosis in dementia is based on not only neuroimaging, but requires a detailed history and mental status examination, often not only from the patient, but also

from the care-givers. A detailed history taking and mental status examination will facilitate one in identifying the emotional disturbances which often precede the memory changes as in FTD, help in picking up MCI, which must not be missed. MCI has a 10-20% prevalence; 5-10% of MCI in community progress to dementia compared to only 1-2% in normal population. It is of mainly two types: Amnesic which progresses to AD in 90% and non-amnesic type, which is a fore-runner to other dementias. It is also imperative that one should rule out depression and reversible effects like medication which can also confound the diagnosis. Neuropsychological assessment and testing are also important as is the evaluation of behavioral and psychotic symptoms. Psychiatric symptoms predict more rapid progression and death as well poorer quality of life and increased care-giver burden. As demonstrated by Onyike in 2016, a good history and mental status examination are of infinite use in making a complete diagnosis and distinguishing between different subtypes of dementia¹⁴. Use of different rating scales are important to assess the patients. Alzheimer's Disease Assessment Scale- Cognitive Subscale, Alzheimer's Disease Cooperative Study- Activities for Daily Living, Clinician's Interview- Based Impression of Change plus, Functional Assessment Staging, Mini- mental state examination, Neuropsychiatric Inventory, Neuropsychiatric Inventory- clinician rating scale, Severe Impairment Battery, BEHAVE-AD, Cohen Mansfield Agitation index, Cornell Scale for Depression in Dementia, Apathy Inventory, Global Deterioration scale etc are amongst the scales that can be used for assessing the patients of dementia. It also can be suggested that better history taking abilities and more focus on behavioral and cognitive changes puts the psychiatrist at an advantage of diagnosing dementia than other specialists.^{17, 28, 29, 30, 31, 32.}

Treatment approaches: Treatment of dementia involves the treatment of the risk factors, the cognitive deficits as well as the management of the neuropsychiatric symptoms. Early detection of reversible conditions and care of risk factors like vascular issues improve outcome. Early initiation of cognitive rehabilitation including mnemonics, association strategies and computer assisted training programs have been found to be useful in management and psychosocial interventions can be applied.

Specific pharmacological agents for cognitive reversal: multiple agents have been tried for reversing the cognitive changes in dementia. However, majority of the experimental drugs have not proven effective for management of the same. The agents with no evidence of action are Gingko biloba, piracetam, melatonin, nicotine, Vitamin B6, E, B1, folic acid, selegiline and NSAIDs, whereas those with some benefit are antidepressants and nimodipine.

The main agents with at least established modest effectiveness are the cholinesterase inhibitors (ChEIs) like donepezil, galantamine, rivastigmine and NMDA antagonists like memantine. A meta-analysis by Hansen in 2007 involving nearly 14 studies, as well as others have revealed that these agents offer only modest/ significant but small effect improvement over placebo, with NNT of 12 in mild to moderate dementia. Studies on severe dementia are too few and not positive. The long term follow up studies are lacking. It also has to be noted that none of the agents are approved for MCI and that they are not very useful in vascular dementia or for neuropsychiatric symptoms. Worsening of behavioral changes in FTD with ChEIs have been noted. They also have cardiorespiratory and gastrointestinal adverse effects, dizziness, headache and sleep disturbances as the main side effects, which are lowest with donepezil and highest with rivastigmine. There has been evidence indicating that these agents increase extra-pyramidal symptoms when combined with DA blockers. Most observational studies also indicate that 50% or more of patients discontinue ChEI therapy within 1 year of initiation due to adverse effects. US FDA has approved ChEIs for mild-to-moderate stage of AD; expanded the indication for donepezil and

rivastigmine transdermal patches to include severe AD. In UK and other European countries, ChEI are licensed for the treatment of mild-to moderate AD only. These agents have not been found to be cost-effective when cost is compared to the improvement. Overall, the CHEIs and memantine have limited role in the management of dementia. The pharmacological management of dementia for all specialties end with this, except for psychiatry, as mostly only the psychiatrists have the training and disposition for further management and most patients at this juncture are in fact, referred to psychiatrists.^{33, 34, 35, 36, 37, 38.}

NUANCES OF MANAGEMENT:

Breaking the bad news: Suffering from dementia is stigmatizing to the patients. Shame, discrimination, rejection, social isolation, loss of the sense of control, and altered self-image following symptom presentation are quite common and have significance in management as well as to improve the quality of life. Studies suggest that diagnostic disclosure in dementia is inconsistent, with up to 50% of clinicians routinely withholding a diagnosis of dementia. A sensitive, compassionate patient centered full disclosure is essential and the therapist needs to focus on providing realistic hope by highlighting individual variation in disease manifestation and progression, availability of treatment options that might delay decline for a while and ongoing progress in dementia research. Again, the diagnosis of dementia is quite similar to many chronic psychiatric illnesses and the psychiatrist thus has more experience in such situations.^{39.}

Management of agitation and aggression: Best evidence for management of agitation and aggression exists for antipsychotics. As per studies, there is modest response to citalopram, carbamazepine and to CHEIs. Benzodiazepines are also used. However, there are multiple reports of mortality with use of antipsychotics in dementia and the risk has been found to be dose-dependent. Thus, expertise while prescribing antipsychotics/ psychotropics are essential. Psychiatrists are more experienced in handling these agents. Behavioral interventions in form of identification and avoidance of precipitating factors, appropriate communication techniques (including calm approach, simple, clear commands), acceptance or validation of false statements/ inappropriate requests, distraction techniques as well as ruling out pain and delirium are very effective and long-lasting when compared to the pharmacological management.^{40, 41, 42, 43, 44, 45, 46, 47.}

Management of anxiety and depression: Antidepressants have been found to be useful with maximum evidence for sertraline and citalopram. Antidepressants with increased anticholinergic properties are not preferred. Electroconvulsive therapy can be used also in case of increased severity. Non-pharmacological techniques are the first line in case of symptoms not severe enough to fulfill the diagnosis of Major Depressive Disorder. These include daily routine, instituting pleasant activities, caregiver education and supportive strategies.^{40, 41, 48.}

Care-giver support and burden: Care-giving for patients with dementia is burdensome and stressful, more importantly in developing countries like India. It involves financial, social, emotional and physical aspects. It also results in increased physical disorders, substance use, anxiety and depressive disorders in the care-giver, as well as worsening of relationship between care-giver and patient. These care-givers are in need of respite care in form of friends, family or paid staff.^{49, 50} Problem solving and coping strategies, behavioral management therapy, multicomponent therapy and other modalities can provide considerable relief to the care-givers, making the difficult time easier. Support groups of care-givers also provide valuable feedback as well moral and tangible support.^{51, 52, 53, 54.}

Other non-pharmacological strategies in patients with dementia: These strategies are valuable and free of side-effects. These are the main modalities: Behavioral therapy, in which triggers, behaviors and reinforces are identified with involvement of patient and care-givers; Reality orientation therapy which involves reminding patients of facts about themselves and their environment including signposts, notices and other behavioral aids; Validation strategy which attempts to communicate by empathizing with the feelings and meanings hidden behind confused speech and behavior, identifying the emotional content of what is being said over the person's orientation to the present and Reminiscence therapy in which well-being, social interaction, cognitive stimulation are stressed upon, reliving of past events that are positive and emotionally significant. Other therapies like aromatherapy, sensory stimulation techniques have also been studied.^{55, 56, 57.}

Legal implications: Decision making/ capacity, informed consent, advance directives, therapeutic privilege, testamentary capacity, end of life issues, including euthanasia and do not resuscitate (DNR) are important legal aspects of dementia that require careful consideration and sorting out. Treatment issues including surreptitiously giving medication and with-holding treatment also are issues that can have legal implications. These are similar to the legal implications associated with chronic psychiatric illnesses, and the psychiatrists are again at an advantage in this aspect when compared to other specialties. Further discussion upon this aspect is beyond the scope of this address.^{58, 59.}

Conclusion: Thus, as elaborated above, dementia appears to be more similar with respect to the structural aspects, symptomatology, diagnosis as well as management to psychiatric disorders than to neurological disorders. However, the contribution of neurology in diagnosis and management of risk factors are of significant importance and cannot be ignored. There is dire need of a liaison between the two specialties as well as involvement of specialties like psychology, speech therapy etc in order to deliver the best possible care to the patients who suffer from dementia as well as provide respite to the care-givers. However, to conclude, it needs to be remembered that we cannot dissect out psychiatry from treatment of dementia, as if we do so, then these patients will cease to be patients, they will become only cases.

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