



POPULATION AGEING AND DEMENTIA

The 21st century's biggest healthcare challenge



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We are living in unprecedented times of population ageing, where the world currently has the largest proportion of older persons in the history of humankind. Population ageing has garnered much attention in recent years, as globally the number of older adults aged over 65 reached 901 million in 2015¹. In Malaysia, the older person's population is currently at 5 percent, projected to increase to 14.5 percent in the year 2040. This effectively triples the number of older people in an immensely compressed period, making Malaysia an aged nation in the very near future.

Despite the positive perception of longevity, genetic risk factors coupled with biological insults over time makes health deterioration natural amongst older people. Hence, chronic degenerative diseases such as ischemic heart disease, strokes, diabetes and cancer account for the principal causes of death in Malaysia. Globally, however, rising life expectancies have contributed to a new age of neurodegenerative diseases, also known as dementia. The number of people with dementia worldwide is currently 46.8 million, expected to increase to 131.5 million in 2050². On an individual level, this translates to one new case diagnosed globally every 3 seconds! Dementia

trends in Malaysia mirror that of developed countries, whereby the current number of 123,000 persons with dementia is expected to rise to 590,000 in 2050³.

Dementia is an umbrella term for a syndrome characterized by progressive cognitive impairment due to brain diseases. The commonest cause for dementia is Alzheimer's disease, others being vascular dementia, Parkinson's dementia and frontotemporal dementia. These diseases cause a progressive mental decline in terms of memory loss, impaired perception and loss of motor skills, whereby over time the person

Did you know

Alzheimer's disease is the most common form of dementia which contributes up to 80 percent of dementias.

100
95
90
85
80
75
70

Dementia has overtaken heart disease as the leading cause of death in the United Kingdom since 2015.

whereby the early stage of dementia is classified as the initial two years, the middle stage up to five years, and after that the third stage of dependence. Dementia is potentially the most feared disease of later life, as it is the leading cause of disability and dependency amongst the older person. As many persons with dementia (PWD) show varying levels of cognitive decline throughout the illness, the burden of care falls on family members as the condition progresses. The collateral damage in dementia is inevitable, leading to physical, psychological and financial stress in the carer.

The carer has to oversee a PWD's difficulties in the initial stages of the disease, such as completing errands, managing simple tasks and understanding social cues. The

is rendered dependent for activities of daily living. Although dementia is not exclusive to the older population over the age of 65, the stark reality is that no-one survives its diagnosis, leaving behind devastated caregivers, families, societies and economies.

Genetic predisposition, vascular risk factors and ageing leads to the accumulation of amyloid beta plaques and neurofibrillary tangles, which further leads to oxidative stress and neuroinflammation. Its symptoms may initially mask that of normal ageing (Table 1).

The disease progression in dementia can be approximated over a decade,

TABLE 1: SIGNS OF NORMAL AGEING VERSUS EARLY DEMENTIA

NORMAL AGEING	EARLY DEMENTIA
Cannot find keys	Routinely places keys, wallet in odd places
Trouble recalling names in general	Forgets names of family members and common objects
Forgets details of conversations	Frequently forgets entire conversations
Miscalculates cash	Cannot manage accounts or balance figures
Occasionally feels sad and lonely	Extremes of moods, from tears to rage
Cannot find a recipe	Unable to follow simple steps E.g., to make a cup of tea
Occasionally makes a wrong turn	Gets lost in familiar places, prone to wandering



dependence increases in the later stages of disease especially with basic activities of daily living such as dressing, eating, and toileting. Psychiatric symptoms may manifest later in disease progression, referred to as behavioral and psychological symptoms of dementia (BPSD). Evidence of BPSD includes depression, paranoia, delusions, hallucinations and personality changes.

The complexity and paucity of available support in managing dementia have led to poor outcomes, especially caregiver distress. At some point, the PWD will require full-time care at home or be institutionalized, and with current health and social care initiatives advocating ageing at home, family members inadvertently play the role of full-time carers. The late stage of dementia sees the PWD in near total dependence, inability to recognize families and friends, and possibly aggression. Caring for the individual at this point gives rise to caregiver burden, leading to social isolation, strained relationships, negative psychological and mental health effects in the carer.


However, the silver lining in dementia research is that transitional phases between normal brain health and cognitive decline of up to twenty years have been implied, providing a window for early intervention. Many screening facilities and memory clinics are now operating at the level of primary care and as part of hospital outpatient services, providing neurocognitive and functional assessments to streamline the need for timely intervention. Furthermore, the effects of dementia can be mitigated by screening for diabetes, hypertension and

depression, as these are the major risk factors for Alzheimer's disease and vascular dementia. Increasing service provision and accessibility to memory clinics within the community targets preventive strategies even at the midlife population.



Novel treatment modalities such as cellular therapy, gene therapy and immunotherapy have demonstrated promising prospects in modulating the course of dementia⁵. These therapies have shown results in terms of enhancing hippocampal neurogenesis, increasing synaptic plasticity, and amyloid beta plaque clearance^{6,7}. Various animal studies to date have also shown the therapeutic effects of stem cells, hence currently human clinical trials using stem cells to treat Alzheimer's disease and vascular dementia are underway, results expected to be released in 2018⁸.

The success story of population ageing will enable the average Malaysian's life expectancy to reach 80 years old by 2020. Unfortunately, dementia prevalence continues to

rise in tandem, with a global cost to society postulated at USD818billion⁹. In lieu of the economic consequences posed, the facilitation of memory clinics and biomedical research must be made a priority for this disease of unmet needs. Not only that, public, social and personal responses are crucial in fostering empowerment and independence in later life. Only then can the true meaning of the World Health Organization's 'adding life to years, and not just years to life' be a living reality¹⁰. 

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