Rethink dementia

Moving towards the ‘Healthy Brains’ Clinic’ model

Over 18% of the UK’s population is now over 65 years old, and this proportion is increasing to the point where the UK will soon be a ‘super-aged’ society, defined as 20% of the population over the age of 65. Ageing is the single most important risk factor for dementia, thus the prevalence of dementia is also increasing. By 2025, there will be an estimated 1 million people living with dementia in the UK and this figure is set to double by 2050 (a rise of 146%).

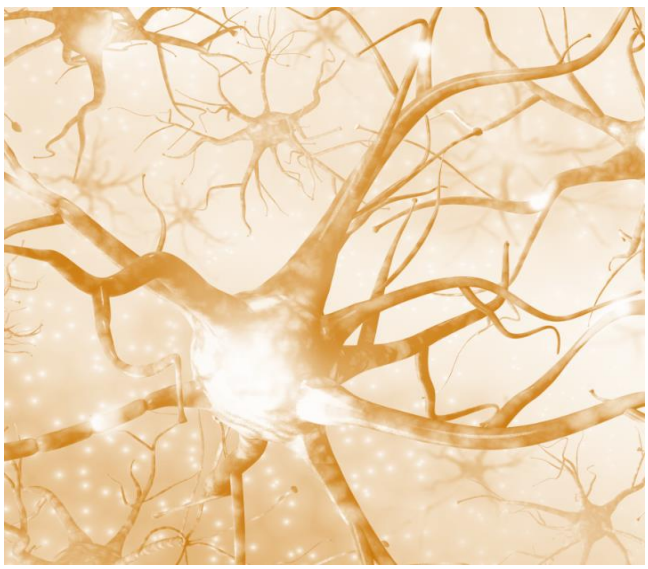
Worldwide, there are currently nearly 50 million people already living with dementia, and this number is projected to triple by 2050. Alzheimer's Disease is the most common form of dementia, constituting over 60% of all those with dementia. Until recently, the focus for the treatment of dementia has been on alleviating symptoms, patients are not normally offered treatment until they meet the criteria for ‘dementia’ and are no longer in the ‘mild cognitive impairment’ (MCI) stage. These treatments have a modest effect at improving symptoms of memory loss and some behavioural problems, but have no effect on slowing the underlying neurodegeneration of the disease. Historically, in the UK, Memory Assessment Services were established to administer and monitor these treatments. The model of these Memory Assessment Services, however, is now outdated and there is a demand for change.

The case for change:

Currently, there is greater focus on the prevention of dementia by slowing the conversion from mild cognitive impairment stage to full dementia. It is now known that delaying the onset of the full syndrome of dementia, by even a few years, will significantly reduce the overall prevalence of dementia in society, and will have a significant positive impact on the lives of individuals, as well as the overall impact of dementia on the economy (Zissimopoulos et al. 2014).

There are two main strategies to achieve this. Firstly, ‘prevention’ involves the identification of those at risk for progression to dementia (not all those with mild cognitive impairment will progress to dementia) and the management of those risk factors (Livingston et al. 2017). Secondly, there is the promise of disease modifying treatments. Disease modifying treatments are currently being offered to patients in the context of clinical trials, however, it is anticipated that some of these treatments, which may have the potential to slow the progression to more advanced dementia in Alzheimer's Disease, will be licenced for clinical use within the next few years (Ritchie et al. 2017). Several compounds with disease modifying treatment potential are now undergoing final pre-licensing clinical trials. Currently, these drugs are mostly focussed on either eliminating or reducing the build-up of the toxic forms of the protein amyloid, an important component of Alzheimer's pathology, but other strategies are also being investigated. The full impact of a licensed disease modifying treatment is unclear, but the repercussions on resources and the need for a cultural change in diagnosis and treatment is substantial.

The key factor to the use of these new agents will be the accurate and early detection of Alzheimer's Disease in the very early stages of dementia. If detected too late, the chance that the disease modifying treatment may work will be significantly less. By the time clinical symptoms appear, it is likely that amyloid pathology has been present in the brain for several years and extensive neuronal damage is already present (Sperling et al. 2011). Thus, an essential approach to therapy is to halt the development of, or get rid of toxic amyloid, prior to the damage occurring. This requires a radical re-think in the diagnosis and management of Alzheimer's Disease.



New diagnostic criteria has been published which is no longer based on the presence of a dementia syndrome. Specifically, the Alzheimer's Disease classification (National Institute on Aging-Alzheimer's Association International Workgroup; McKhann et al. 2011) is now based on the presence of biomarkers, which include cerebrospinal fluid findings from lumbar punctures, amyloid scans, and MRI hippocampal findings. Forty percent of those with positive biomarkers will progress to mild Alzheimer's Disease within two years, suggesting there is a strong case for clear identification and intervention for this group.

Finally, even in the absence of a new disease modifying treatments the evidence that at a significant proportion of dementias might be preventable through lifestyle factors is mounting. The recently published Lancet Commission report on 'Dementia prevention, intervention, and care' (Livingston et al., 2017) makes the point that while ageing is the single most important risk factor for developing dementia, it is not an inevitable consequence.

Using a life-course model of risk, based on the calculation of 'population attributable factors', the report described how over a third of new cases of dementia could theoretically be eliminated, or significantly delayed, if certain lifestyle factors were removed before the onset of dementia. These include increasing childhood education and exercise, maintaining social engagements, reducing or stopping smoking, and the management of hearing loss, depression, diabetes, hypertension, and obesity.

The need for reconfiguration of Memory Assessment Services:

The current status of Memory Assessment Clinics does not emphasise the 'prevention' model in Alzheimer's Disease. If patients are assessed in clinic prior to the onset of dementia, most often, they are discharged back to primary care to wait until they progress.

At the point at which patients present with the syndrome of dementia in the 'mild to moderate stage', they may be referred back for symptomatic treatment, provided the underlying cause of their dementia is Alzheimer's Disease or dementia due to Parkinson's Disease or Lewy Body Dementia. For most other dementias, no medication or other intervention is available.

Prior to the dementia stage, while still in the mild cognitive impairment stage, in general, no intervention is offered. In some cases, those referred back to primary care in this stage may never find their way back to the Memory Assessment Service for treatment, or, families have to struggle to get a re-referral when an individual's condition declines.

There is a clear need to consider new approaches to how very early cognitive decline should be managed. This would ideally be done in the context of a 'Healthy Brains' Clinic', with a focus on: identifying which patients in the early stage of mild cognitive impairment will progress to dementia compared to those whose condition will remain static or even improve; prevention and slowing the rate of conversion to dementia through medication (when available); health-related behavioural change, or; other non-pharmacological interventions (i.e. cognitive training/stimulation, reduction of social isolation etc.). The model of a Healthy Brains' Clinic is distinct from current Memory Assessment Service models, which focus on people with established dementia who need support in managing their symptoms.

Pilot Healthy Brains Clinic in Manchester:

At Greater Manchester Mental Health Foundation Trust, a pilot Healthy Brains Clinic has now been established alongside the existing Memory Assessment Service. Through a reconfiguration of the service and of staff roles, all individuals referred to the service who do not meet the criteria for a clinical diagnosis of 'dementia', but clearly have cognitive impairment, will be directed to the Healthy Brains' Clinic for more detailed cognitive testing and determination of biomarkers. From there, those found to be at risk of progression will be offered regular clinical follow-up, cognitive stimulation/brain training, and a bespoke healthy lifestyle programme, with the aim of delaying the onset of dementia, or, failing that, identifying the conversion to dementia at the earliest possible point, thereby ensuring that treatment is not delayed.

Summary:

The clinical approach to dementia in the UK now needs to move beyond just diagnosing and supporting people with existing dementia and urgently needs to focus on prevention, delay of onset of dementia, and very early identification of individuals at risk of progressing from MCI to dementia. This can best be done in the setting of a Healthy Brain Clinic. As pointed out by the 2017 Lancet Commission by Livingston et al., 'acting now on dementia prevention, intervention, and care will vastly improve living and dying for individuals with dementia and their families, and in doing so, will transform the future for society'.

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