6. Priority diseases and reasons for inclusion

6.11 Alzheimer disease and other dementias

See Background Paper 6.11 (BP6_11Alzheimer.pdf)

In 2008, the WHO launched the Mental Health Gap Action programme which included dementia as a priority condition. This was then followed by a major report in 2012.1,2 While improvements in health care over the past century have contributed to people living longer and healthier lives, this has also resulted in an increase in the number of people with noncommunicable diseases, including dementia. Dementia is a syndrome, usually of a chronic or progressive nature, which affects memory, thinking, behaviour and the ability to perform everyday activities. There are currently no treatments available that can cure or even halt the progressive course of dementia.

The four commonest subtypes of dementias are Alzheimer disease (AD), vascular dementia (VaD), dementia with Lewy bodies (LBD), and frontotemporal dementia (FTD). Alzheimer disease remains by far the most common form of dementia, as shown in Figures 6.11.1a and 1b.
Figures 6.11.1a and 1b: Dementia cases in the United Kingdom: consensus estimates of the proportion of all dementia cases accounted for by different dementia subtypes, by age and gender

1a) Women

1b) Men


PD. Parkinson’s disease, FTD Frontotemporal dementia, LBD Lewy bodies dementia, VaD Vascular disease, AD Alzheimer disease:

The WHO estimates that in 2010, 35.6 million people worldwide were living with dementia. That figure is projected to almost double every 20 years, reaching 65.7 million by 2030 and 115.4 million by 2050. Europe is particularly affected, with an estimated 10 million cases of dementia in 2010 and a projected increase to 14 million in
2030. By 2050, 22% of the world’s population will be aged 60 or over, and 80% of this older age group will be in Asia, Latin America or Africa.

In 2010, Western Europe was the region with the highest number of people with dementia (7 million), closely followed by East Asia with 5.5 million, South Asia with 4.5 million and North America with 4.4 million. The nine countries with the largest number of people with dementia in 2010 were China (5.4 million), the United States (3.9 million), India (3.7 million), Japan (2.5 million), Germany (1.5 million), Russia (1.2 million), France (1.1 million), Italy (1.1 million), and Brazil (1.0 million).²

Figure 6.11.2: Estimated prevalence of dementia for people aged 60 and over, standardized to Western Europe population.*

Note: *Regions used here are those used in the Global Burden of Disease 2010 Study.³

The financial costs of managing dementia are enormous in terms of both public and private resources. The WHO estimates that the total cost of treating and caring for people with dementia is currently more than US$ 604 billion a year worldwide.¹ In several high-income countries, between a third and one half of people with dementia live in resource- and cost-intensive residential or nursing homes.² In the United
Kingdom, a report commissioned by the Alzheimer Research Trust showed that the societal costs of dementia (£23 billion) were almost as much as the combined costs of cancer (£12 billion), heart disease (£8 billion), and stroke (£5 billion).

The exact mechanisms leading to AD are largely unknown, making it difficult to find therapies that can prevent or delay the onset of the disease. Several risk factors have been described, including age, cardiovascular disease, diabetes, hypertension, smoking, obesity and metabolic disorders, as well as a history of brain trauma. Dementia is usually diagnosed on the basis of physical and neurological examinations, as well as standard tests of mental function and brain imaging to detect signs of intellectual impairment. A definitive diagnosis of AD disease can only be made through a postmortem biopsy of the brain. Medicines (such as cholinesterase inhibitors and glutamatergic agents) are used to palliate aggressive behaviours and mood disorders as well as to reduce cognitive disorders.

Developments since 2004

In 2012, the WHO published the report “Dementia: a public health priority.” Since 2004, efforts have been intensified in the search for new therapies. Several clinical trials have been launched to investigate new pharmaceutical compounds for AD, as well as immunotherapy and vaccines. Pharmaceutical companies have invested heavily in these research areas, but none of these strategies have proved effective in substantially modifying the outcome of the disease.

Remaining challenges

Alzheimer disease and other dementias have become a major public health concern. As the number of patients with AD and other dementias is expected to rise significantly, there is an urgent need for action. The number of patients affected is increasing substantially and there is no available treatment. However, health care and financial systems both in Europe and worldwide are not adequately prepared to cope with the magnitude of the situation.

While the failure of the most recent clinical trials, as well as the associated high risk and cost, discourage investment from the pharmaceutical industry, there is still substantial involvement in this area with 100 products in development. The lack of biomarkers for therapeutic endpoints remains a major barrier in the clinical development of medicines for AD. The discovery of biomarkers for AD could not only provide the tools to monitor the progression of the disease and the effectiveness of new medicines, but also provide new pathways for research and understanding of AD and other dementias.

Research needs

There is an urgent need for validated biomarkers for measuring and monitoring the progression of the disease, as well as identifying individuals at risk of developing AD.
There are currently no specific markers that can confirm with 100% certainty a diagnosis of AD. Although much work is already under way in the search for new biomarkers, continued efforts are still required. The development of biobanks of material including tissues, blood, urine, and cerebrospinal fluid from patients and healthy volunteers should help identify such markers. In Horizon 2020 support could be provided to such networks. Several EU initiatives such as PredictAD and Pharmacog are also contributing to the search for new therapeutic molecules.

References