

Safer Walking Technology in Dementia

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Overview

- Dementia and cognitive impairment
- Walking with a purpose
- Pilots of tracking in dementia

Dementia and Cognitive Impairment

- Dementia – Umbrella term for group of diseases causing impairment of thinking (cognitive impairment) due to death of brain cells (neurons)
- Commonest form is Alzheimer's disease
- Also Vascular dementia, Parkinson's dementia, frontotemporal dementia, etc.
- Type of cognitive impairment dependent on where neurons are lost from in brain

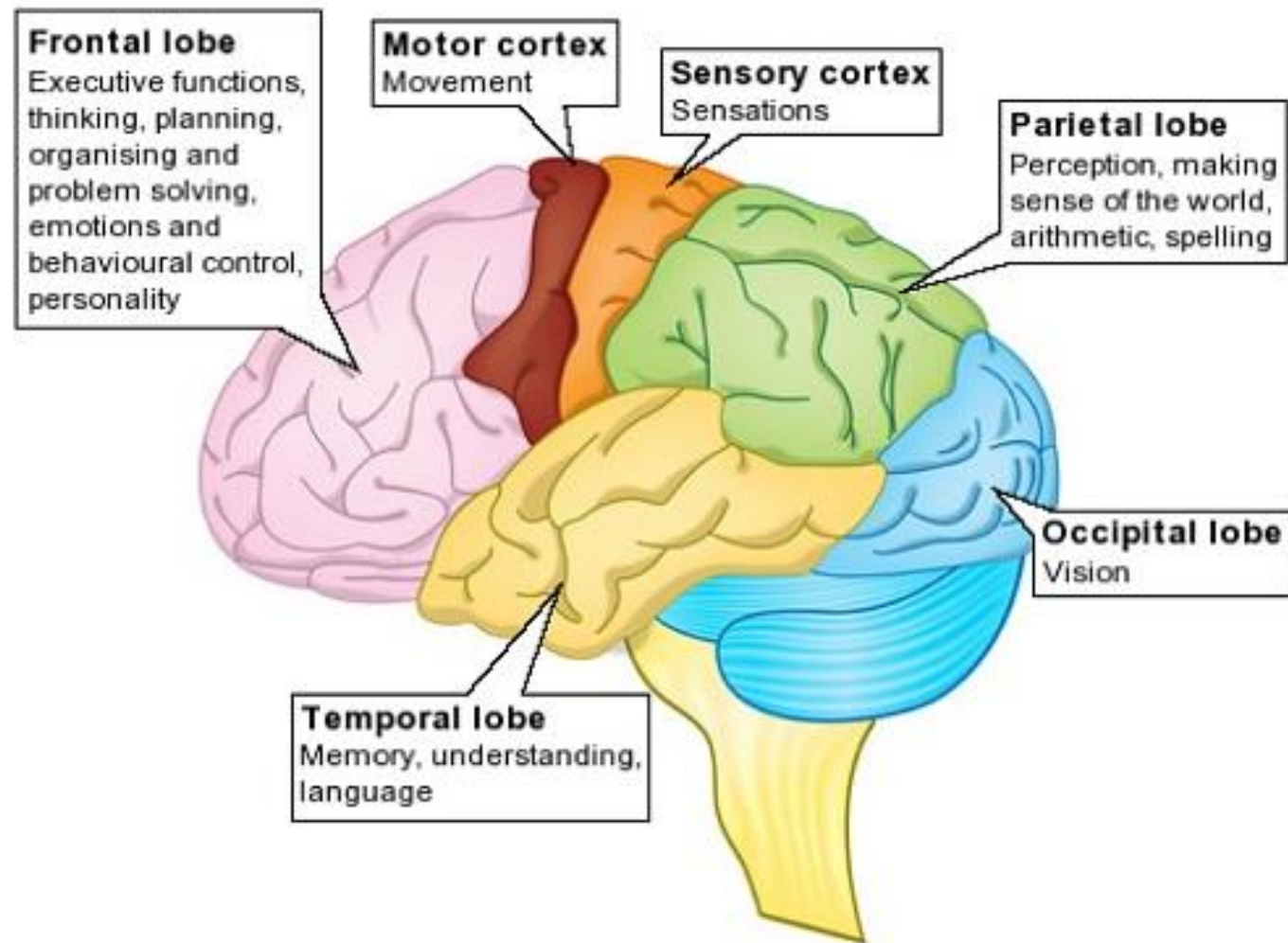


Figure 3. *Anatomy and functions associated with different brain regions. The temporal lobe houses the hippocampus, amongst other regions, and is where AD pathology is first seen. In VaD, the area affected by stroke or other vascular abnormalities will determine the cognitive symptoms observed.*

Getting Lost in Dementia

- Lots of different brain processes involved in finding your way
- Hippocampus - long-term memory storage, recognition of new surroundings and creation of cognitive maps
- Entorhinal cortex – north, south, east and west. Near hippocampus
- Right parietal lobe - where objects are in relation to each other and ourselves
- Common problem in Lewy Body dementia, Alzheimer's disease and some forms of vascular dementia



Prognosis in Dementia

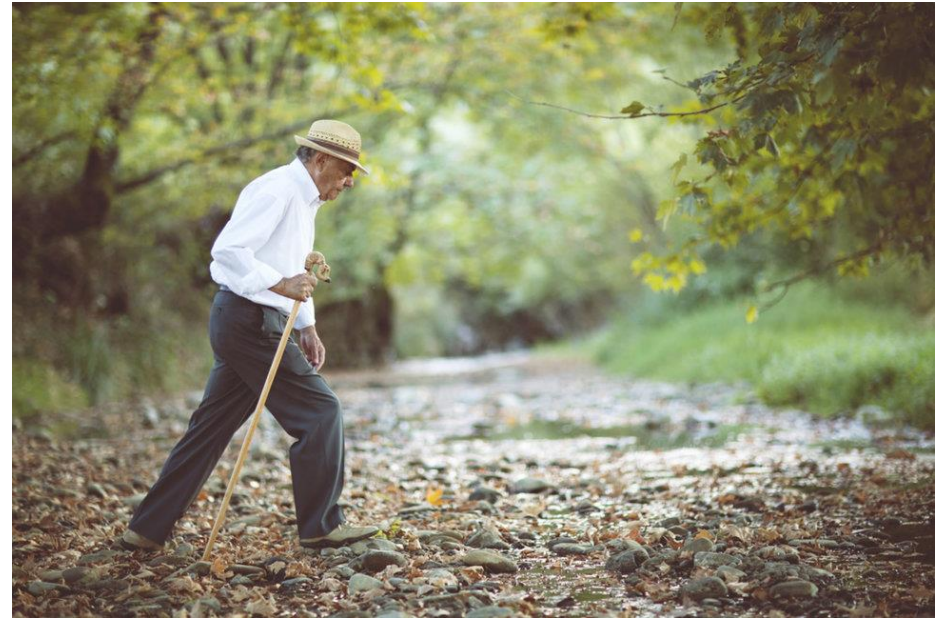
- Progressive deterioration
- Life expectancy at stages 5-7 less than 4 years
- Getting lost may appear as early as Stage 4

GLOBAL DETERIORATION SCALE (GDS)

| Stage | Deficits in cognition and function | Usual care setting |
|-------|--|---|
| 1 | Subjectively and objectively normal | Independent |
| 2 | Subjective complaints of mild memory loss. Objectively normal on testing. No functional deficit | Independent |
| 3 | Mild Cognitive Impairment (MCI) Earliest clear-cut deficits. Functionally normal but co-workers may be aware of declining work performance. Objective deficits on testing. Denial may appear. | Independent |
| 4 | Early dementia Clear-cut deficits on careful clinical interview. Difficulty performing complex tasks, e.g. handling finances, travelling. Denial is common. Withdrawal from challenging situations. | Might live independently – perhaps with assistance from family or caregivers. |
| 5 | Moderate dementia Can no longer survive without some assistance. Unable to recall major relevant aspects of their current lives, e.g. an address or telephone number of many years, names of grandchildren, etc. Some disorientation to date, day of week, season, or to place. They require no assistance with toileting, eating, or dressing but may need help choosing appropriate clothing. | At home with live-in family member. In seniors' residence with home support. Possibly in facility care, especially if behavioural problems or comorbid physical disabilities. |
| 6 | Moderately severe dementia May occasionally forget name of spouse. Largely unaware of recent experiences and events in their lives. Will require assistance with basic ADLs. May be incontinent of urine. Behavioural and psychological symptoms of dementia (BPSD) are common, e.g. delusions, repetitive behaviours, agitation. | Most often in Complex Care facility. |
| 7 | Severe dementia Verbal abilities will be lost over the course of this stage. Incontinent. Needs assistance with feeding. Lose ability to walk. | Complex Care |

Adapted by Dr. Doug Drummond from Reisberg B, Ferris SH, Leon MJ et al. The global deterioration scale for assessment of primary degenerative dementia. *American Journal of Psychiatry* 1982;139:1136-1139.

Walking in Dementia



- Often people living with dementia walk a lot for reasons that their carers cannot understand
- Sometimes this results in conflict or people getting lost
- Used to be called "wandering"
- Better term is "purposeful walking" or walking with a purpose
- Why is the person is walking?

Reasons for Walking with a Purpose

- https://www.alzheimers.org.uk/site/scripts/documents_info.php?documentID=152
- continuing a habit or interest
- relieving boredom
- lack of physical activity
- relieving pain and discomfort
- responding to anxiety and relieving stress



Reasons for Purposeful Walking

- feeling lost (especially in a new environment)
- restlessness (as a symptom of dementia or a side effect of medication)
- memory loss
- searching for the past or seeking a sense of fulfilment
- confusion about the time



Preventing Harm from Walking with a Purpose

Most Restrictive

Lock doors

Use medication to sedate person

Restriction just to make life easier for carer

Least Restrictive

Distract with activities involving interaction

Arrange supervised activity

Place curtains across doors

Set up a circular route within house and garden



Tagging in Dementia Projects

- Sussex police 2013 – 15 tags available. Wearable GPS and person wearing it could push button on device to speak to a call centre.
- At least two people found quickly using device when they got lost.
- 4050 logged calls to the system Sept-Nov 2013

- Dr Frank Miskelly 2002 Charing Cross hospital. 6 month pilot of tagging 4 care home residents with dementia. Two episodes of leaving building alone prevented.

- More recent studies of views of caregivers. Little on views of people with dementia.

- “They may have dementia but would they actually wish to be tracked in this way? It’s about getting the balance between a person’s wishes and imposing a technological solution on them that they may or may not wish to have happened.”
- Bill Bentley, an East Sussex councillor, 2013
- 'In some circumstances and when appropriate consent is given, GPS tracking can enable a person with dementia to remain independent for longer, providing them and their carer with peace of mind. But any tracking system must support and never replace good quality care'
- Alzheimer's Society, 2013

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