An Australian Government Initiative

WA DTSC
For health-care professionals

# Dementia


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Training support • Skills development • Competency • Assessment • Scholarships • Education

# Preamble and disclaimer

*These slides are made available by the Western Australian Centre for Health and Ageing as a resource to support delivery of high quality dementia education*

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*Use of this material should be acknowledged*

# Outline of Presentation

- Overview of Dementia
- Neuroanatomy and functional correlates
- Dementia subtypes
- Assessment for dementia
- Options for care and treatment
- Support for carers
- Palliative care

# Dementia

- **Definition** – progressive, largely irreversible clinical syndrome characterised by global impairment of mental function

- As the condition progresses - some/all of the following:
  - Memory loss
  - Language impairment
  - Disorientation
  - Personality change
  - Difficulties with ADLs
  - Self-neglect
  - Psychiatric symptoms
  - Behaviour change

# Epidemiology

In **Australia:**

- 2008: 227,300 persons with dementia.
- 9,600 cases under 65 years of age.
- 57,000 new cases expected to be diagnosed in 2008
- 2050: 731,000 cases projected.
- 1 in 15 aged 65+ (prevalence rate)
- 1 in 9 aged 80 – 84
- 1 in 4 aged 85+
- Affects the lives of nearly 1 million Australians (carers)
- Prevalence in Australian Aboriginals 5x higher
- 1 in 8 Australians with dementia from NESB

*SOURCE: Alzheimer's Australia. Dementia Facts and Statistics. Updated January 2008.*

# A Costly Challenge

- 2002: $6.6 billion total financial cost of dementia.
- 2051: Anticipated 3.3% GDP
- Family carers provide 80% of value of informal care, without financial compensation.
- Half of persons with moderate to severe dementia live in community settings, half in residential care facilities.

# A Complex Problem: Morbidity and Mortality

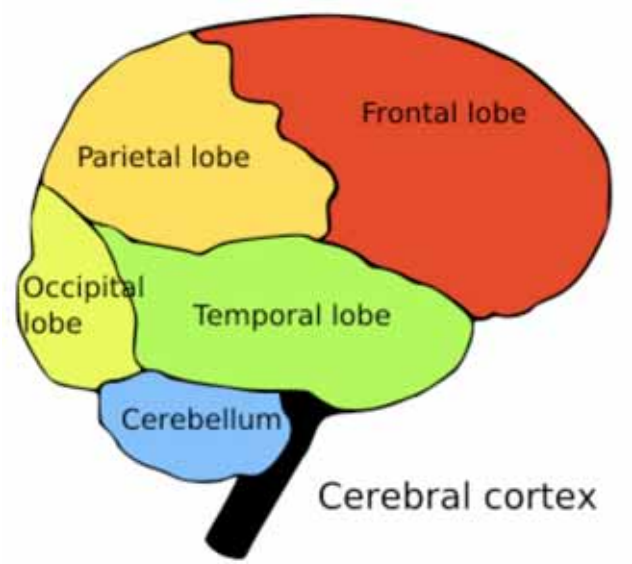
## Complex care needs

- Dementia 2nd to depression in disability burden *(Access Economics 2003)*
- With disease progression, can present behaviours of concern such as aggression, restlessness and wandering, incontinence psychotic symptoms and mobility problems.

## Mortality

- Fourth leading cause of death in age 65+.
- Survival 4-8 years, depending on age at diagnosis, severity at diagnosis, other medical conditions, gender.

# Functional Neuroanatomy




- Frontal Lobe- reasoning, planning, parts of speech, movement, emotions, and problem solving
- Parietal Lobe- movement and perception, orientation, recognition
- Occipital Lobe- visual processing
- Temporal Lobe- auditory perception, memory, and speech

# Neurological Conditions Causing Dementia

- Alzheimer's disease* (50-70%)
- Vascular dementias* (10-20%)
  - Multi-infarct dementia
  - Binswanger's disease
- Dementia with Lewy Bodies (DLB)
  - Diffuse Lewy Body disease
  - Lewy body variant of AD
  - Parkinson's disease
- Other less common dementias
  - FTD, CJD, PSP, NPH, HD, alcohol.

*Mixed Common

# Alzheimer's Neuropathology

- Neuritic plaques
  - Core of amyloid, abnormal neurites and glial cells
  - Amyloid is diagnostic of AD
- Neurofibrillary tangles
  - Extracellular phosphorylated tau protein
  - Not specific for AD (80% of people > 80y)
- Other findings
  - Cortical neuronal loss
  - Amyloid angiopathy

# Alzheimer's Disease

- Asymmetric onset usually seen
- If dominant (usually left) hemisphere affected first then language problems early
- If right hemisphere first – tend to have problems organising activities in space and flattening of expressed feelings
- In some patients personality changes and psychoses prominent early (limbic and/or frontal areas)
- Ultimately a global process

# Vascular dementia

- **Multi-infarct dementia**
  - Most common form of VD
  - Multiple strokes
  - Location determines deficits

- **Binswanger's disease**
  - Subcortical vascular dementia
  - Related to chronic hypertension
  - Pathological changes greatest in the cerebral white matter, especially in the territory of the long penetrating arteries.
  - Subcortical dementia with gait dyspraxia, hyperreflexia and personality changes in a patient with vascular risk factors.

# Dementia with Lewy Bodies

- Lewy bodies are neuronal inclusion bodies
- Lewy bodies found most often in the temporal lobe, in the cingular gyrus, amygdala and insula.
- Memory loss may be more subtle than in those with AD.

# Fronto-temporal dementia

- Degeneration of the frontal +/or temporal lobes of the brain
- Includes FTD, Progressive non-fluent aphasia, Semantic dementia and Pick's disease
- Progressive aphasia – begins left hemisphere, language problems dominate initially
- Right temporal onset –prominent change in personality
- Both frontal lobes initially –problems with organising and planning, may also show disinhibited behaviour and word finding problems; Pick bodies in some cases.

# Alzheimer's Disease

- Most common cause of dementia.
- Regarded as a syndrome.
- May coexist with other causes of dementia.

**DSM-IV Diagnostic criteria for AD (1994)**

- Multiple cognitive deficits
  - Short and long term memory impairment
  - One or more of the following:
    - Aphasia
    - Apraxia
    - Agnosia
    - Disturbance of executive function
- Gradual onset, functional impairment, continuous decline
- Decline from previously higher level of function
- Exclusion op other possible causes.
- No evidence for delirium.

# Alzheimer's Disease

**NINDS-ADRA Criteria** (preferred by NICE)

**PROBABLE AD**

- Dementia
- Deficits 2 or more cognitive domains
- Progressive worsening memory and other cognitive functions
- No disturbance consciousness and absence of other systemic disorders.
- Onset between 40 and 90 years of age.
- Progressive worsening of specific cognitive functions.
- Impaired ADL.
- Associated behavioural abnormalities.

**POSSIBLE AD**

- Dementia syndrome in the absence of other neurological, psychiatric or systemic disorders sufficient to cause dementia, and in the presence of variations in the onset, in the presentation, clinical course.

**UNCERTAIN/UNLIKELY AD**

- Sudden onset
- Focal neurological findings.
- Early seizures or gait disturbance.

# Clinical Course of AD

- Slowly progressive disease.
- Mild (MMSE 21-30), moderate (MMSE 11-20) and severe (MMSE 10 or below)
- Pathology begins years before any symptoms or functional compromise manifest.
- Early – memory impairment, personality changes, gait and posture normal, anomia, impaired abstraction, behaviour indifferent or delusional.
- Later - global cognitive impairment evident, gait impaired, behaviour agitated, stuporous or delusional.

# Common Medical Problems in AD

- Falls and fractures
- Incontinence (urinary/faecal)
- Malnutrition with sarcopaenia
- Immobilisation with contractures and rigidity
- Depression
- Infections
- Delirium
- Seizures
- Other medical comorbidities – stroke, heart attack, arrhythmia

# Vascular Dementia

- Distinguishing from AD
  - Onset – in multi-infarct dementia may be abrupt deterioration in cognitive functions or fluctuating stepwise progression of cognitive deficits.
  - Cardiovascular risk factors, previous stroke or TIA.
  - Focal neurological deficits.
  - Multiple infarcts on imaging.
  - In Binswanger's, subcortical pattern

# Dementia with Lewy Bodies

Classical features to assist diagnosis:

- Parkinsonian type symptoms (may be mild)
- Visual hallucinations
- Memory loss (may be subtle) leading to very severe dementia.
- Fluctuating cognition
- Executive function deficits.
- Severe visuo-spatial deficits.
- Neurolept sensitivity (EP and cholinergic side effects)

# Parkinson's Disease and Dementia

- PD – progressive disorder of the CNS characterised by tremor, rigidity, bradykinesia.
- 30% of elderly patients with PD develop dementia
- Possible causes:
  - Dementia with Lewy Bodies (DLB)
  - Dementia associated with PD – "subcortical dementia" (PD-D)
  - Alzheimer's disease (AD)

# Dementia Diagnosis

- Memory assessment services
- History
- Cognitive and mental state examination
  - MMSE – be aware of limitations.
  - Other standard tests eg clock drawing
  - Assess affect
- Physical examination
- Review of medications (including OTC)
- Appropriate investigations
- Formal neuropsychological testing
  - Mild dementia, unusual features

# Investigations

- “DEMENTIA SCREEN”
- MSU if delirium a possibility
- Consider CXR if indicated.
- Lumbar puncture not routine.
- Radiology – MRI preferred, CT more readily available
- Other imaging – SPECT
- Other tests if indicated eg EEG
- APOE, neurobiological markers (research)

# Communicating results to patient and family

- Determine client and carer's expectations and preferences
- Remember the general principles of "breaking bad news"
- Offer supporting material (including further appointment and written information)
- Sometimes it will be a relief to "have an answer"

# Options for care and “treatment”

- Pharmacotherapy usually forms a small component of the treatment plan.
- All carers and relevant staff should have access to dementia care training (including volunteers)
- Environment
  - both in residential care (dementia-specific) and home
  - Assistive technologies to maintain independence

# Care Options

- Medications: blister packing, prompts & supervision.
- Cognitive stimulation programs.
- Services – HACC, CACP, D-EACH.
- Day Centres
- Respite (residential, in-home)
- Permanent care – or planning for the future.
  - 50% low care, 90% high care with cognitive impairment.

# Behaviours of concern

- includes calling out, aggression and risky behaviours
- Often stressful for carers
- Resources such as DBMAS
- Judicious use of medications to treat anxiety, psychosis or depression

# Cultural, ethnic and social issues

- Consider schooling and cultural factors in assessment, utilising professional interpreters when required
- Consider culturally appropriate services
- Consider persons social strengths

# Pharmacotherapy

- Cholinesterase inhibitors
  - PBS prescribing criteria restrict therapy to certain groups
- Memantine
  - Very specific PBS criteria
- Antidepressants
  - Modern agents (eg SSRI) safer and better tolerated
- Antipsychotics
  - Try non-pharmacological interventions first (behavioural strategies, music, massage, aromatherapy) for challenging behaviours.
  - Increased risk of cerebrovascular accidents and death
  - Very cautious use in DLB (extrapyramidal toxicity).

# How effective are the dementia drugs?

- Modest improvements in cognition, ADL and global function.
- About 50% of patients can be considered positive responders
- superior to placebo at 6 – 12 months.
- NICE guidelines revised to state consider use for mod-severe AD (MMSE 10-20), not milder.
- Possibly slows down progression of dementia and reduces nursing home admission ?also neuroprotective effects.

# Other therapies

- Insufficient evidence to recommend Gingko biloba, vitamin E, anti-inflammatory medications, oestrogens
- Social supports are **the** most important management strategy.

# Multi-disciplinary care

- Holistic care requires input from multiple professions and non-professional groups
- Peer support is often as valued as professional input
- Different perspectives may be critical at different points in the dementia journey

# Care planning

- Health care (“Living Wills”)
- Financial
  - Testamentary capacity
  - Enduring power of attorney (EPA)
- Social
  - Respite for client and carer
  - Accommodation options
  - Driving – risks, testing
  - Risk of abuse – physical, financial

# Addressing Caregiver Burden

- Identify any psychological distress and psychosocial impact on the carer.
  - Regular reassessment
- Individual or group education.
- Peer support with other carers.
- Support via telephone or internet.
- Psychological counselling (or CBT) if needed.
- Training courses about dementia, services and benefits, communication and problem solving.
- Involve the person with dementia if appropriate.
- Practical offerings – transport, services, Day centres, respite.
- Am I at risk? – genetic counselling, education (Mind Your Mind)
- Maintaining quality of life for the carer

# Palliative Care

*Palliative care approach from time of diagnosis until death* *(NICE Clinical Guideline 42)*

- Support QOL, death with dignity in place of own choosing.
- Access to palliative care services.
- Artificial feeding generally not beneficial in persons with severe dementia.
- Infections.
- Resuscitation status.
- Pain relief.
- Try to keep previously expressed preferences in mind. Discuss with carers and relatives.

# Quality of life for patient and carer

- Improvement of quality of life (QoL) in dementia is a high priority for care and research
- Many people with dementia can report their QoL
- Utility of informant rating of QoL uncertain
- QoL does not necessarily decline as dementia advances (perhaps due to changing insight)

# Enabling approaches

- Traditional time limited restorative rehabilitation approaches may have limited benefit for people with dementia
- Alternative adaptive strategies
- Enabling retained abilities to encourage independence and quality of life
- Enabling environments

# Dementia and co-morbidities

- preventing complications and/or recurrence
- Optimising control of vascular risk factors
- Maintaining physical health and cognitive strengths
- High risk of delirium with intercurrent illness

# Prevention

- Control of vascular risk factors
- Maintenance of physical health including physical activity
- Cognitive Activity

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