14 essentials in the practice & art of diagnosis & management of dementia

Henry Brodaty

Multiple conflicts of interest

• All drug companies interested in dementia
• Advisory Board, investigator, consultant, sponsored speaker

1. Do not dismiss as “old age”

• Prevalence of subjective cognitive complaints (SCC) in older people
  – Review of SCC prevalence, rate of 25-30%\(^1\)
  – In Sydney Memory and Ageing Study
    95.5% of participants (70+ yrs) or informants endorsed SCC if asked\(^2\)

\(^1\)Jonker et al. 2000 Int J Geriatr Psychiatry, 15, 983-991
\(^2\)Slavin et al. (2010). Am J Geriatr Psychiatry, 18:8, 701-710
2. Be alert to cognition in older pts

- Especially those aged 75+; routinely ask about difficulties
- Cognitive complaints x-sectionally correlate w.
  - Neurotic personality, depression, anxiety
  - Poor QoL, Poor physical health
- Cognitive complaints longitudinally correlate w.
  - Cognitive decline and dementia


What is dementia?

- An umbrella term to describe a syndrome
- Usually progressive and irreversible
- Over 100 causes
1. Alzheimer’s disease = most common
2. Vascular dementia (multi-infarct dementia; cerebrovascular disease)
3. Lewy body dementia
4. Fronto-temporal dementias
5. Mixed AD and VaD, especially with old age

What is dementia - definition

- Decline in ≥ 1 cognitive function
  - Memory
  - Language
  - Executive abilities - planning, abstract thinking, organisation, conceptual shift
  - Visuo-spatial abilities
- Impairs daily function: occupational or social
- Exclusion – solely delirium, some psychiatric conditions (depression = pseudo-dementia)

Translating dementia research into practice

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Prevalence of dementia

- > 5% of population ≥ 65 years old
- 20% of persons ≥ 80 years
- 30% of ≥ 90 years old
- In Australia ≈ 330,000 people with dementia
- In 1000 GP practice, ≈ 200>65 → 10+ with dementia & ≈ >24 with pre-dementia (MCI)
  - Approx. 2 new dementia cases per year

Projections of dementia worldwide


Dementia prevalence in Australia

AIHW Dementia in Australia 2009
What is Mild Cognitive Impairment?

- Petersen criteria revised \(^1,2\)
  - Not normal, not dementia
  - Self and/or informant report
  - Impairment on objective cognitive tasks and/or
  - Evidence of decline over time on objective cognitive tasks
  - Preserved basic ADLs and minimal impairment of complex function
  - Generally intact global cognition

\(^1\)Petersen et al, Arch Neurol 1999;56:303–308

Mild Cognitive Impairment (MCI)

Cognitive Performance

Normal \[\text{MCI}\] Dementia

Normal > MCI > AD

On all measures, MCI is intermediate between normal controls and AD:
- Neuropsychology
- Neuroimaging
- Neuropsychiatry
- Neuropathology
MCI – why the fuss?

- Prevalence rate 3-25%¹
- Progression to dementia 2.6% to 15%² p.a.
  - Higher than age matched population of 1.8%²
- Early diagnosis may identify those who would benefit from earlier treatment


3. Take history regarding cognition & function from informant

- Clinical history
- Interview informant, assess carer needs
  - See informant separately if possible
- Activities of daily living – dress, wash, toilet, teeth, shave
- Instrumental ADLs – cooking, shopping, meds, finance, transport, telephone, driving, safety
- More complex activities – bridge, languages

4. Assess cognition if any indication or suspicion of impairment

- www.dementia-assessment.com.au
- MMSE and Clock Drawing Test
- GPCOG www.gpcog.com.au
- RUDAS
  - If uncertain repeat over time
GP diagnosis of dementia

- 74% of people consult a GP first after noticing symptoms of cognitive decline, and …
- 79% consider GPs to be easily accessible¹
- GPs are best placed to identify dementia early
- But, GPs do not diagnose about 50% (< 91%) of mild cases²³

³Boustani et al J Ger Int Med 2005;20:572-7

GP Screening for cognitive impairment

- GPs screen for high blood pressure, cholesterol, diabetes, cancer
- Prevalence of dementia >10% in 75+
- Why not screen for dementia?
  - Because it takes too long, not sure how?
  - Because there is no treatment if diagnosed?
  - Because not sure of next steps?
  - Complicated rules for ChEIs

Why don’t GPs diagnose dementia?

- Time
- No point
- Nihilism; “Terrible” Dx
- Unsure of skill
- Not sure of next step
- Lack of knowledge about guidelines

Brodaty et al, MJA, 1994; Williams JS, Byrne J, Pond D (2009) Gaps between practice and literature
Why don’t GPs diagnose dementia?

- Poor remuneration
- Patients/families not presenting full picture
- Skill in breaking bad news
- Worry about effect on patient
- Worry about effect on family carer

Brodaty et al, MJA, 1994

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GPCOG

Cognition (/9)
- Learn name, address (5 items)
- Date = 1 (exact)
- Clock numbers = 1
- Hands of a clock for 11.10 = 1
- Current event (detail) = 1
- Recall name and address = 5

9/9 → OK
<5 → impaired
5-8 → informant interview...

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GPCOG: 6 informant questions

More difficulty:
- Memory
- Word finding
- Recalling conversations

Less able to:
- Manage finances
- Manage transport
- Manage medications

If > 3 ‘Yes’ → impaired
Translating dementia research into practice

The GPCOG website:
A web-based assessment of cognitive impairment in the primary care setting

www.gpcog.com.au

Web-based screening test for cognitive impairment
National and international guidelines for diagnosis and management of dementia

Background information on the GPCOG

Downloads:
Recommended standard investigations
Printable versions of GPCOG
Papers about GPCOG

Available languages:
English, French, German, Greek, Spanish, Italian, Mandarin, Cantonese, Russian, Polish, Thai, Hebrew, Portuguese

…and realises that the 12 is missing
Draw in the hands to show 10 past 11 o’clock or 11.10

Other frontal tasks

• Tapping
  – When I tap once, I want you to tap twice
  – When I tap twice, I want you to tap once
• Explain proverbs – culture bias
• Verbal fluency: FAS, animals
• History – can’t follow movies, lack of anticipation, change in sense of humour, disinhibition, change in personality
• Interview – trouble understanding

5. Conduct mental state and physical examination

• Look for specific conditions that mimic dementia (depression, delirium, drugs) or that can compromise cognition (eg cardiac failure, use of anti-cholinergic drugs)
• Check nutrition, hygiene, vision, hearing
6. Investigate causes of cognitive decline

- Rule out rare, but reversible causes eg. Abnormal thyroid, calcium or Vit B12, tumour

Assessment: Routine Ix

- FBC, ESR or CRP
- Clinical chemistry including calcium
- Thyroid function tests
- B12, folate
- CT scan of brain (without contrast)

Investigations if indicated

- ECG
- CXR
- EEG
- micro-urine
- fasting glucose, lipids
- serology for HIV, syphilis
- neuropsychological Ax
- MRI
- SPECT
- PET scan
Advances in biomarkers

- Cerebrospinal fluid
  - Amyloid β Protein (Aβ42) ↓
  - Tau Protein (τ and τp) ↑
- MRI scans – serial, fMRI
- SPECT scans + dopamine label
- PET Scans + amyloid ligands

From the online newspaper of Prof Yasser Metwally

PiB-PET Scans: AD vs MCI vs control

From the online newspaper of Prof Yasser Metwally

7. Diagnose cause

- Exclude depression and delirium
- Diagnose type of dementia
  - Type of dementia
    - 90% AD, vascular or mixed, then Lewy body and frontotemporal
    - Most older pts. have mixed dementia
    - Outline of clinical features of different dementias
Clinical features: Alzheimer's disease

- Prototype of dementia
- Insidious onset with gradual decline
- Death usually within 10 yrs (1-20+yrs)
- Some familial clustering
- Four stages: MCI, mild, moderate and severe

Symptom Progression in AD

Vascular dementia types

- Single strategic stroke
- Multiple small strokes
- Thickening of walls of arterioles
- Haemorrhage
**VaD clinical features**

- Sudden onset, step-wise deterioration, uneven steps, varying plateau
- Vascular risk factors
- Focal neurological symptoms and signs
- Impairment reflects damage deep in brain
- Abnormal brain scans

**VaD clinical features**

- Many vascular dementias have slow gradual progression
- More slowing of mentation
- Difficulty with retrieval rather than learning
- Evidence of cardiovascular risk factors
- Gait ∆, depression
- MRI scan – DWMH++, lacunes, strokes, hippocampi not especially atrophic
Vascular dementia with preserved hippocampi

**Dementia with Lewy Bodies**

- 3rd most common dementia
- M > F; usually >65 yo
- Survival shorter than AD, mean 7yrs

**Lewy body disease**

- Cortical Lewy bodies
  - Synuclein stain
Dementia with Lewy Bodies

- Progressive cognitive decline that interferes ...
- ... with normal social and occupational function
- Fluctuating cognition (looks like delirium)
- Recurrent visual hallucinations (40-75%)
- Spontaneous features of parkinsonism
- Impaired attention, visuo-spatial, frontal-subcortical abilities
- Memory decline usually evident with time

LBD supportive features

- Repeated falls
- Syncope, transient loss of consciousness
- Neuroleptic sensitivity **
- Systematised delusions
- Hallucinations in other modalities
- REM Sleep behaviour disorder
- Depression

Fronto-temporal dementias (Pick syndrome/complex)

- 2-5% of all dementing diseases
- In people aged <65 yrs, as common as AD
- Different presentation and issues
- Two main variants
  - Behavioural
  - Language

Arnold Pick
Fronto-temporal dementias

- Atrophy only frontal and temporal areas (until late disease)
- Often asymmetrical
- Two different protein forms accumulate
  - Tau
  - Progranulin (Ubiquitin, TDP 43)

Fronto-temporal dementias

- Onset usually 50-60y.o. (20-80 y. range)
- Positive Family History in ≈15-30%
- Cases with autosomal dominant inheritance
- Death occurs within 2-15 years (6-12 yrs)
- Rare types
  - MND
  - CBD
  - C-17 mutation → tauopathy → FTD and parkinsonian Sx

Frontotemporal Dementia

- FTD
- MND
- Behavioural form
  - (Primary progressive aphasia)
- Language form
  - Progressive Nonfluent aphasia (PNFA)
  - semantic dementia

Slide from John Hodges
**Fronto-temporal dementias**

- Preservation of memory until late
- Early, prominent personality changes
- Apathy
- Irritability
- Jocularity and euphoria
- Loss of tact and concern
- Impaired judgement and insight
- Word finding difficulties; repetitive

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**FTD – clinical features**

- Compulsive behaviours
  - Repetitive acts, verbal or motor stereotypies
  - Collecting, hoarding
  - Rituals, superstitious acts
- Hyperorality, hypersexuality

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**8. Refer to specialist if...**

- Unsure of diagnosis
- Patient is young or atypical
- Symptoms and signs are atypical
- Psychotic or severe behavioural disturbance
- Multiple, complex comorbidities exist; or
- Considering cholinesterase inhibitor Rx
**Drugs for AD**

4 drugs approved - all symptomatic:
- Aricept (donepezil) - cholinesterase inhibitor
- Exelon (rivastigmine) - cholinesterase inhibitor
- Reminyl (galantamine) - cholinesterase inhibitor
- Ebixa (memantine) - NMDA receptor antagonist

**Benefits of ChEIs**

- Period of modest cognitive enhancement
- Symptomatic treatments not cures
- 2 in 3 maintain baseline or improve
- Functional and behavioural benefits
- Mean 38 to 52 weeks before patients cross baseline of cognitive decline

**Contraindications**

- Active peptic ulcer
- Bradyarrhythmias eg sick sinus syndrome
- Asthma?
- Previous adverse response
ChE Inhibitors: AEs

- Nausea
- Anorexia
- Vomiting
- Insomnia
- Dizziness
- Muscle cramps
- Nightmares

PBS rules changed in May 2013

Starting
- AD diagnosis confirmed by relevant specialist
- MMSE ≥ 10

Continuing
- Requires clinically meaningful improvement from medication within first 6 months
- Streamlined authorisation (# 4219) available for continuation script every 6 months

Clinically meaningful response

- Quality of life including but not limited to level of independence and happiness
- Cognitive function
- Behavioural symptoms, including but not limited to hallucination, delusions, anxiety, marked agitation or associated aggressive behaviour
Who should prescribe Rx?

Initial:
• Specialist
• GP after specialist confirmation of diagnosis

Subsequent continuations:
• Any doctor, no further testing required

What dose do you start \(\rightarrow\) titrate to?

**Aricept**
• 5mg \(\rightarrow\) 10mg

**Reminyl**
• 8mg PRC \(\rightarrow\) 16mg PRC

**Exelon**
• Patch 5 \(\rightarrow\) Patch 10

9. Inform patient and family of diagnosis, management plan and prognosis

• How to break the news
• Truth telling
• What is your practice?
The art of truth telling in dementia

- Therapeutic privilege – withholding information justified if likely to injure the patient
- Depends on person’s understanding
- Psychiatric symptoms influence decision

Should family always be told?

- Most clinicians do, but...
- Should Drs ask patients for permission to tell family and/or other health professionals?
- Do patients retain equal status?

Fears expressed by families

- *Disclosing a diagnosis of dementia can lead to*
  - Depression; anxiety
  - Stigma
  - “Leprosy syndrome”
  - Giving up; decompensationng
  - Family members acknowledging own vulnerability
  - Risk of suicide
Family conflict and those who refuse to accept diagnosis

- **Fighter or frightened?** Family member refuses to accept diagnosis
- **Families at war:** One side accepts and the other rejects diagnosis
- **Families:**
  - sibling rivalry (especially if estate or $$)
  - where will mum live?

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**Breaking bad news**

*Recommended strategies*¹

- prepare patient for possible diagnosis
- include others that pt would like present
- assess patient’s perceptions; correct misinformation²
- **And this requires real clinical skill:**
  - give pt as much info as desired
  - let patient set pace of disclosure

²Mueller P, Postgraduate Medicine 2002 112(3):15-6, 18

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**Breaking bad news ctd**

- Present information clearly
- Be reassuring and empathetic
- Encourage involvement in treatment decisions
- Discuss patients’ questions on the same day
- Beware of overload and strong emotion
- Provide written information/ summary

²Mueller P, Postgraduate Medicine 2002 112(3):15-6, 18
Breaking bad news

- Acknowledge and discuss pt’s feelings
- Provide realistic and honest hope
- Assure patient of doctor’s availability
- Summarise areas discussed
- Offer second appointment shortly after

My own practice

- For assessment always see patient and informant separately
- Tell patient and family together but offer to see separately, or…
- Patient first and then family & then together
- Allow time

Breaking the news by degrees

- Memory problems confirmed; test results
  - Age related degeneration
  - Disease that causes this….?
  - Alzheimer’s
- Strategies to compensate, practical issues
- Drug treatments, research
- Arrange follow-up for family and patient

1 Schofield P et al Annals of Oncology 2003; 14:48-56
2 Mueller P, Postgraduate Medicine 2002 112(3):15-6, 18
Compassionate honesty is the best policy

- Most people want to know their diagnosis
- Attitudes over time are changing (cf cancer)
- Families often protective
- Formulae do not work
- Need to tailor information to person
- Follow-up visits/contacts

10. Discuss key issues with patient and family

- Legal issues
- Medication for AD if appropriate
- Lifestyle – regular exercise, mental stimulation, establish routine
- General health – blood pressure, other health conditions

Legal Issues

- Enduring Power of Attorney
- Enduring Guardianship
- Advance Directives
- Informed consent for medical treatment
- Capacity to drive
- Capacity to work
Enduring Power of Attorney

- PoA relates to money and estate, not health, etc
- Recommend for all persons diagnosed with dementia (and for all persons >50)
- Tests for capacity?
- EPoA applications vary by jurisdiction
- May come into effect immediately or when triggered

Enduring Guardianship

- Proxy decision maker for services, accommodation, health
- Triggered by loss of decision making capacity
- Flexible: 1 or more guardians, severally or jointly, different guardians different powers
- Prudent to arrange early in dementia
- Prudent for us all to consider this now

Advance Directives

- Treatment
- Withholding treatment
- Participation in research
- Disposal of body, tissue donation at death, funeral arrangements
Informed Consent for Medical Treatment

- Person must understand
  - the nature of the treatment
  - the possible effects
  - the potential side effects
  - the alternatives
- Understanding varies with complexity
- Person must be able to communicate understanding and wishes

Informed Consent for Medical Treatment

- Dementia will affect understanding; holding information in head while weighing up pros & cons; and communication
- Loss of capacity is a point on a sliding slope
- If unable to give consent, then proxy consent
- Who can give proxy consent varies by jurisdiction. In NSW = person responsible
- If no proxy, Guardianship Tribunal may appoint Public Guardian or similar

Capacity to Drive

- Mentally incompetent can be danger to self and others
- Level of cognitive impairment poor correlation with capacity to drive
- Best test is on road
- “Co-pilot”, familiar routes only, day time only – help but not sufficient
- Better for specialist to bear blame
Capacity to Drive

- No person with dementia can have unconditional licence
- All persons with dementia will lose ability time
- If person already obviously incompetent cancel licence immediately
- Approach 1: cancel licence immediately
- Approach 2: graded restrictions and warning about cessation “later”
- Approach 3: send for On-road Assessment

Note: Poor correlation between cognitive testing and driving performance

Capacity to Work

- Capacity vs Competency
- Capacity vs Safety
- Decision for employer usually
- May become legal matter
  - doctor, lawyer, architect
  - judge, politician

11. Develop Care Plan

- Include legal/financial matters
- Make follow-up appointments
- Example care plan:
**Medicare benefits schedule for dementia**

- For pts 75+, one Ax per yr covered by MBS
  - items 701, 703, 705, 707 (time) & 715 (for Aboriginal/ Torres Isl. patients)
  - practice nurse can do many aspects
- For all pts w. dementia, care plan is covered by MBS CDM items 721 (GP Mx Plan), 723 (Team Care) & 732 (review of GP Mx Plan and Team Care Arrangements).
- Financial advantage for using these instead of MBS level C and D items (long or prolonged consultations)

**12. Refer patient and family for further information & support**

- Alzheimer’s Australia
- Community services
  - Medicare Local

**Comorbidities**

- Falls
- Delirium
- Weight loss
- Frailty
- Oral health
- Epilepsy
- Vision
- Sleep disorders
- BPSD
Behavioural & psychological Sx

- Citalopram may help agitation, delusions, hallucinations but can prolong QT interval
- Antipsychotics have a place
  - for aggression
  - For psychosis
  - but ↑CVA & MR
- Antidepressants - disappointing
- Informed consent from pt. or proxy in writing
- Review regularly, > 3rd monthly

14. Regularly review care plan

- Medications
- Physical health
- Carer health and stress levels 3 – 6 monthly
- Cognitive testing at least 12 monthly
- Behavioural symptoms – assess and manage
Novel treatments

- Many trials have failed
  - Semagecestat
  - IV Ig
- For AD
  - β-secretase inhibitors
  - Antibodies to Aβ
  - Intranasal insulin
  - Tau Rx
- For MCI
  - Many of same Rx
  - Computer cognitive training programs eg Lumosity, Posit Science
  - CCT + tDCS
  - Exercise programs

Role for GPs in prevention

- Physical Exercise 30'/day, ≥ 5days per week
  - More may be better, aerobic + resistance
- Mentally active
- Socially engaged
- Diet - Mediterranean; antioxidants
- Alcohol – moderate
- Blood pressure, cholesterol, weight – mid-life
- Depression

http://www.alz.co.uk/research/world-report-2014

Alzheimer's Australia

- http://yourbrainmatters.org.au
References

- Brodaty H, Connors M, Pond D. How to treat: dementia. Australian Doctor, 2014 *in press*

Conclusions

- You will have more patients presenting with memory problems
- Assessment is good medicine
- Case for screening very old
- Assessment is manageable...
- ... and there is good business model
- 14-step model presented
- [www.dementiaresearch.org.au](http://www.dementiaresearch.org.au)
- [www.cheba.unsw.edu.au](http://www.cheba.unsw.edu.au)
- [www.fightdementia.org.au](http://www.fightdementia.org.au)