Non-pharmacological interventions in people with dementia and behavioral symptoms

Henry Brodaty
Dementia Collaborative Research Centre
www.dementiaresearch.org.au
Centre for Healthy Brain Ageing
www.cheba.unsw.edu.au
University of New South Wales (UNSW Australia)

Potential conflict of interests

• Advisor, consultant, remunerated speaker and/or investigator:
  – AstraZenica, Baxter, Eisai, Elan, Hoechst-Marion-Roussel, Janssen, Lilly, Lundbeck, Merck, Novartis, Nutricia, Parke-Davis, Pfizer, Sanofi, Searle, Servier, TauRx, Voyager, Wyeth
  – Cromedica, Icon, Neotherapeutics, Quintiles,

What are BPSD?

• Agitation
• Aggression
• Calling out/ screaming
• Disinhibition (sexual)
• Wandering
• Night time disturbance
• Shadowing
• Swearing
• Depression
• Anxiety
• Apathy
• Delusions
• Hallucinations
• Irritability
• Elation/euphoria
**Why are BPSD important?**

- Ubiquitous, >90% of PWD during course
- Distress to PWD and to caregivers
- Increase rate of institutionalisation
- Higher rate of complications in hospital
- Associated with:
  - Faster rate of decline
  - Increased mortality

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**Effects of BPSD**

- Residents with BPSD are more likely to¹:
  - be physically restrained
  - receive antipsychotic medication
  - negatively influence other residents
- BPSD increase the cost of institutional care for persons with dementia²
- BPSD, especially aggression³ & calling out⁴, increase nurse stress


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**Aetiology of BPSD**

- Biological
- Psychological
- Interpersonal
- Environmental
Biological causes - intrinsic

- Frontal pathology (behavioural disturbance, disinhibition, depression)
- Basal ganglia lesions (delusions)
- Temporal lobe (delusions, hallucinations)
- Locus coeruleus (psychosis, depression)
- Chemical changes – serotonin, NA, DA
- Genes – serotonin, dopamine receptors
- Family history of psychiatric disorder

Biological causes - extrinsic

- Acute medical illness
- Medication
- Pain syndromes
- Constipation
- Sensory impairments
- Fatigue
- Fears
- Basic needs (hunger, thirst...)
- Psychiatric syndromes

The bio-psycho-social framework

| Environmental vulnerability → ↓threshold for stress or stimuli | Unmet needs; unable to comprehend or make needs known |
| Neurological deterioration → behavioural disinhibition | Behavioural: triggers and feedback from others control behaviours |

1 Hall and Buckwalter 1987; 2 Algase et al, 1996; 3 Teri & Logsdon 2000; 4 Cummings JL
Before intervening …

1. Is the description accurate?
2. Identification of target behaviour
3. Does behaviour require intervention?
4. Careful diary of behaviours
5. Exclude non-dementia causes
6. Correct sensory impairment - hearing, vision

Why non-pharmacological interventions?

ChEIs & BPSD

- 29 RCTs, mild-mod AD: 1.72 points on NPI (6 trials) & 0.03 on ADAS-noncog (10 trials) vs PBO; Apathy, hallucinations > benefit Trinh N-H et al, 2003
- Systematic review – only 3/14 RCTs significant reduction in BPSD Rodda et al, 2009
- Individual Sx may be more susceptible: apathy, hallucinations, aberrant motor behaviour, delusions, anxiety, depression www.ipa-online.org
Memantine on BPSD

- Mixed results
  - Several negative results 1-2
  - Some positive results 3-4
- Specific benefits reported for cluster of aggression, hallucinations & delusions


Sertraline for treatment of depression in AD: Wk-24 Outcomes (DIADS-2)

- 67 Sertraline, 64 placebo; 12 wk RCT + 12 wk
- No between-groups diff. in depression response
  - in CSDS score
  - remission rates
  - secondary outcomes
- SSRI associated > adverse events of diarrhoea, dizziness, dry mouth, pulmonary SAE (pneumonia)


HTA-SADD Trial

- Mirtazapine 15 mg & sertraline 50 mg; 1-3/day
- N = 507

Banerjee S, HTA-SADD trial, Lancet, 2011
Effects of citalopram on BPSD

- Improve hallucinations and delusions (= antipsychotics)
- Improve agitation
- 60% ↓ irritability and apathy (but n.s.)
- ↓ hallucinations (statistical but ?clinical significance)


CitAD RCT – citalopram & agitation

- Significant better with citalopram
- Cognitive & cardiac adverse effects may limit effectiveness at 30mg/day


Anticonvulsants for BPSD ¹

- Literature review of 7 RCT (2 carbamazepine & 5 valproate)
- Results (treatment vs placebo):
  - 1 study: sig. ↓ BPSD
  - 5 studies: no sig. difference
  - 1 study: sig. ↑ BPSD
  - AEs more frequent in treatment groups
- Might be beneficial for some patients
- Not recommended for routine use

Effects of antipsychotics

- Meta-analysis from 13 studies\(^1\):
  - Mean ES in Rx = 0.45
  - Mean ES in placebo = 0.32
- Effect sizes of atypical antipsychotics for BPSD are medium, not statistically better than placebo
- Increased rate of stroke\(^2\)
- Increased mortality\(^3\)
- Increased AEs in general

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Continuing vs stopping neuroleptics in dementia patients?

- 12 months RCT
- Continuous use of neuroleptics vs placebo
- For most AD patients withdrawal had no overall detrimental effect
- Continuers – worse verbal fluency (p<.002) and higher mortality
- Subgroup of pts with more severe symptoms (NPI ≥ 15) might benefit from continued Rx

Ballard et al 2008 PLOS Medicine, 5:587-599

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Analgesics

- No analgesic or low dose paracetamol → 3g/day paracetamol (n = 120, 69%)
- Full dose paracetamol or low dose morphine → 5mg bd morphine (n = 4, 2%)
- Low dose buprenorphine or unable to swallow → buprenorphine patch 5-10\(\mu\)g/h (n = 39, 22%)
- Neuropathic pain → pregabalin 25-300mg /d (n = 12, 7%)
## The bio-psycho-social framework

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### How to intervene: Environment

- Modify environment rather than person
- Avoid too much or too little stimulation
- Adequate space
- Privacy available

### How to intervene: Environment

- Secure grounds
- Personalised space
- Non-institutionalised environment
- Home-like
- Colour, furnishings, architecture
- Lighting
- Resident mix
- Size of residential facility
Translating dementia research into practice

**Enhanced Environment**

- Careful optimisation of level of stimulation
  - Reduce unhelpful stimuli
    - eg noise, busy entry doors
  - Optimise helpful stimuli
    - eg light
- Good visual access to toilets
- Outdoor access with staff

Fleming R – www.dementiaresearch.org.au

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**Good evidence for …**

- Careful optimisation of level of stimulation
  - Reduce unhelpful stimuli
  - Optimise helpful stimuli
- Good visual access to toilets
- Outdoor access with staff

Moderate evidence

- Small unit size
  - hard to differentiate effect of unit size from staff related factors
- Opportunity to engage in ordinary ADLs
  - hard to differentiate from staff support/engagement

Fleming R – www.dementiaresearch.org.au
**Translating dementia research into practice**

**Snoezelen: multisensory stimulation**

- Significant treatment effect
  - Apathetic behaviour ↓
  - Loss of decorum ↓
  - Rebellious behaviour ↓
  - Aggressive behaviour ↓
  - Depression ↓
  - Well-being during morning care ↑

- Numbers small, methodology moderate

  Van Weert et al, JAGS 2005;53: 24–33
  Verkaik R et al, IJGP 2005; 20: 301–314

**Aroma therapy**

- **Lavender**
- **Lemon Balm**

Moderate evidence from Cochrane review

**Lemon balm (melissa officinalis)**

- Antibacterial (eugenol)
- Antiviral (tannins)
- Mild sedative or calming agent (terpenes)
- Antioxidant activity
**Light therapy**

- Five studies met criteria; only 3 able to be included
- No adequate evidence of effectiveness of BLT


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**Review on animal-assisted therapy (AAT)**

- 11 papers examining the impact of AAT on BPSD regarding their ability to
  - Reduce agitation and/or aggression
  - Promote social behaviour
  - Improve nutrition
  - Role of pet substitutes
- Small samples, short duration, few studies


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**Robotic pets, toys, dolls**
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Family caregivers

- Family carers as therapists for people living in the community
- Systematic review
  - ES 0.34 for decreasing BPSD
  - ES 0.15 for decreasing caregiver “stress”


CGs administer behavioural treatments for depression to patients with AD ¹

- Behaviour therapies (pleasurable events schedule or problem solving techniques) → pt depression Sx & Dx better than controls
- Improvements maintained @ 6 months
- Bonus: CGs’ depression better

¹Teri et al, J. Gerontol. 1997; 52B:159-166
Dementia Care Mapping & Person Centred Care for agitation

Cost for PCC
≈ $6 to reduce a point on CMAI

Chenoweth et al.
Lancet Neurology 2009

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Psychological approaches to BPSD

- Music therapy
- Snoezelen
- ? Sensory stimulation
- Interventions that changed visual environment looked promising, but …
  … ⇒ research required

1 Livingston G et al
Am J Psychiatry 2005;
162:1996-2021

Useful during treatment but not long term
Translating dementia research into practice

Calming music and/or hand massage

10 min CMAI ratings

before | during | immediately after | 1 hr after

FIGURE 1 Mean agitation scores by treatment group over time: ○ calming music, ▲ hand massage, ○ calming music and hand massage together, ▲ control.

Remington, Nursing Research, 2002

Novel strategies

• Humour therapy
• Volunteers
• Music, singing, dance therapy
• Integrating kindergarten/babies

Humor therapy: SMILE study

• 20% reduction in agitation
• Effect size = antipsychotic medications for agitation
• Adjusting for dose of humour therapy
  • Decreased depression
  • Improved quality of life

Low LF et al BMJ Open 2013
Brodaty et al Am J Ger Psych 2014
Low LF et al JAMDA 2014
Key elements
• Engagement
• Understanding
• Time

Barriers
• Time
• Money
• Staff
• Attitudes
• Training

Prevention of BPSD
• Person centred care and environment
• Right level of stimulation
• Attention to environment
• Treat physical disorders quickly

When everything fails?
• You do everything right but BPSD continues
• Risk to other residents/ staff/ family
• Special care units
  – Medium term  ➔ transfer back to mainstream
• Intensive care unit for very aggressive/ violent

Brodaty H, Draper B and Low LF Medical Journal of Australia 2003
Clinical conclusions about management of BPSD

Conclusions I

- Prevent BPSD, e.g.
  - PCC, environment, titrate stimulation
  - CG and staff training
- Determine cause eg UTI
- Correct reversible factors eg stimulation level
- Start with psychological & environmental intervention(s)
  - except if urgent or sometimes concurrent
  - informed consent

II: Understand the person - Don’t just label the behaviour

- Why is this person behaving this way now?
- Aetiological map → management plan
- Different approaches often together
- Be creative
- Document
- Monitor outcome
- Partnership with family/ carers
Conclusions III

- Pharmacotherapy
  - modestly effective for BPSD
  - Prescribe judiciously
  - Need medico-legal informed consent
  - Start low and go slow
  - Review regularly, at least 3 monthly
    - Trial reductions

Summary ... d’oh!

- Drug treatments limited benefit and → side effects – yet 30% of residents in Australia are on antipsychotics and half on ≥1 psychotropic
- Most drug Rx given without required consent
- Psychosocial and environmental therapies beneficial with effect size > drug Rx

Rendina N et al, IJGP, 2009

Summary ... d’oh!

- So why are nursing homes not engaging more?
- Why is the knowledge not being translated into practice?
  - Training – too little?
  - Cost – too much?
  - Time – not enough?
  - Residents, families, system??
How to make good care *Practice As Usual?*

- Incentives for owners, managers, staff
- Accreditation standards
- Drive demand – families, residents
- Show cost effectiveness
- Publicise, communicate
- Leadership, training

Conclusions

- BPSD common
- Drugs have limited effects *and* AEs
- Psychosocial treatments have ↑ evidence
- Problem is implementation
- Practical suggestions for working with facilities
- Need policy recognition too – accreditation standards, government policy, research support

Thank you

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h.brodaty@unsw.edu.au