Understanding, preventing and remedying behavioural and psychological symptoms of dementia

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

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


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

The bio-psycho-social framework

<table>
<thead>
<tr>
<th>Socio-environmental</th>
<th>Interpersonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological</td>
<td>Psychological</td>
</tr>
</tbody>
</table>

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

### Enhanced Environment

![Image 1](image1.jpg)

![Image 2](image2.jpg)

### Good evidence for ...  

- 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
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

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


**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

Robotic pets, toys, dolls

The bio-psycho-social framework

<table>
<thead>
<tr>
<th>Socio-environmental</th>
<th>Interpersonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological</td>
<td>Psychological</td>
</tr>
</tbody>
</table>

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”

Translating dementia research into practice

**CGs administer behavioural treatments for depression to patients with AD**

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

Teri et al, J. Gerontol. 1997; 52B:159-166

---

**Dementia Care Mapping & Person Centred Care for agitation**

![Graph showing CMAI scores before, after, and follow-up for usual care, person-centred care, and dementia care mapping.]

- Cost for PCC = $6 to reduce a point on CMAI

Chenoweth et al. Lancet Neurology 2009

---

**The bio-psycho-social framework**

<table>
<thead>
<tr>
<th>Socio-environmental</th>
<th>Interpersonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological</td>
<td>Psychological</td>
</tr>
</tbody>
</table>

---
Psychological approaches to BPSD

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

Useful during treatment but not long term


Calming music and/or hand massage

![Graph](image)

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

Pharmacological interventions
Anti-Alzheimer medications

ChEIs & BPSD

- Some benefit, statistically significant in some reviews but questionable clinical significance
- Individual Sx may be more susceptible: apathy, hallucinations, aberrant motor behaviour, delusions, anxiety, depression

Trinh N-H et al, 2003
Rodda et al, 2009
Campbell et al, 2008
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

1 Reisberg B et al, 2003; 2 Van Dyck et al, 2007;
Antidepressants

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 CSDD score
  - remission rates
  - secondary outcomes
- SSRI associated > adverse events of diarrhoea, dizziness, dry mouth, pulmonary SAE (pneumonia)


HTA-SADD Trial

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

\(^1\) Yury C. & Fisher J. Psychotherapy and Psychosomatics 2007
\(^3\) Schneider L, 2005

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

Antipsychotics for …

- Screaming \(\times\)
- Wandering \(\times\)
- Intruding into other people’s rooms \(\times\)
- Aggression ?\(\checkmark\) (but not first line)
- Delusions and hallucinations \(?\(\checkmark\) (but not 1st)

DCRC research into practice  
ChEBA  
UNSW
**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 5-10µg/h (n = 39, 22%)
- Neuropathic pain → pregabalin 25-300mg /d (n = 12, 7%)

Husebo BS et al, BMJ, 2011;343:d4065 doi: 10.1136/bmj.d4065

---

**Prevention of BPSD**

- Person centred care and environment
- Right level of stimulation
- Attention to environment
- Treat physical disorders quickly

---

**Behaviour Management: A Guide to Good Practice**

Managing Behavioural and Psychological Symptoms of Dementia
Clinical conclusions about management of BPSD

“Dr, Mrs Smith-Jones is hitting the nurses, disrupting the other residents and being impossible. Can you prescribe something?”

Clinical practice 1

- Ask nurses to monitor behaviours – what, when, what happens before, during and after?
- How often, when, what are precipitants?
- Exclude pain, UTI
- Determine cause
- 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
Clinical practice 2

- No cause can be found or correctable
- Try psychosocial treatments
  - not sure how?
  - BPSD Guide on your app
  - call DBMAS or local psychogeriatric team
- Psychosocial treatment fail
- Consider pharmacological treatment
- 1st need informed consent from patient or proxy (Person Responsible, Guardianship Act)
- Start low and go slow

Rx for BPSD - summary

- Cholinesterase inhibitors – for apathy
- Memantine - ?benefit for agitation/aggression/delusions/hallucinations
- Antidepressants – citalopram, sertraline, venlafaxine, mirtazapine
- Risperidone 0.5 - 2mg/day; modal = 1mg
- Olanzapine 5mg/day, up to 10mg/day
- Carbamazepine, valproate – titrate dose against response, SEs and blood level
- Analgesic stepped approach

Prescribing & Deprescribing Psychotropics

- Review regularly
  - At least after 3 months
  - Trial reduction, monitor behaviours
- Resident arrived from hospital on psychotropics
  - Find out why
  - If primary psychiatric diagnosis eg Sz, BAD
    - seek psychiatric review
  - If not, trial reduction after pt. settled
When everything fails?

- You do everything right but BPSD continues
- Risk to other residents/ staff/ family
- Special care units
  - Medium term \( \rightarrow \) transfer back to mainstream
- Intensive care unit for very aggressive/ violent

Brodaty H, Draper B and Low LF Medical Journal of Australia 2003

Conclusions

Summary … d’oh!

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

Rendina N et al, IJGP, 2009
Summary ... d’oh!

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
• Prevent BPSD PCC, environment, titrate stimulation, CG and staff training
• 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
Conclusions

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

The HALT study
Halting Antipsychotic use in Long-Term care

Thank you
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)

h.brodaty@unsw.edu.au