

Behavioural and psychological symptoms of dementia (BPSD)

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Potential conflict of interests

- **Advisor, consultant, remunerated speaker and/or investigator for:**
 - Parke-Davis, Eisai, Pfizer, Sanofi, Servier
 - Janssen, Lilly, Hoechst-Marion-Roussel,
 - Lundbeck, Novartis, AstraZenica, Forest,
 - Neotherapeutics, Cromedica, Voyager

Driving and Dementia

You are driving a car at a constant speed

- **On your left side is a valley**
- **On your right side is a fire engine travelling at the same speed as you**
- **In front of you is a galloping pig which is the same size as your car and you cannot overtake it**

- **Behind you is a helicopter flying at ground level**
- **Both the giant pig and the helicopter are also travelling at the same speed as you**
- **What must you do to safely get out of this highly dangerous situation?**

Get off the children's Merry-Go-Round

..... You're drunk

Aetiology of BPSD

- Biological
- Psychological
- Environmental



Biological causes - intrinsic

- Frontal pathology (behavioural disturbance, disinhibition, depression)
- Basal ganglia lesions (delusions)
- Temporal lobe pathology (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

Psychological causes

- Previous psychiatric illness
 - links with prior and current depression ¹
- Premorbid personality
 - Sydney NH Study: no meaningful correlations ²
- Reaction of others to person with dementia
 - - link between depression in persons with AD and GHQ in caregivers; ? Causality ³

¹ Pearlson et al, 1990; ² Low et al, 2002; ³ Brodaty & Luscombe, 1996

Environmental¹

- Overstimulation
- Understimulation (boredom)
- Overcrowding
- Size of home - SNHS: size vs BEHAVE-AD, $p < .05$ ²
- Inconsistent routine
- Provocation by others
- Physical restraints

¹Day et al, 2000; ²Brodaty et al, 2001

Effects of BPSD

- Residents with BPSD are more likely to¹:
 - be physically restrained
 - receive antipsychotic medication
 - negatively influence care staff
 - negatively influence other residents
- BPSD increase the cost of caring for a person with dementia in an institution²
- BPSD increase nurse stress, especially aggression³, calling out

¹Maslow K 1994; ²O'Brien JA, Shomphe LA, Caro JJ 2000;
³Rodney, 2000; ⁴Draper et al, 2000

When to intervene?

- Distress to patient
- Distress to others
- Excess disability
- Danger to self or others

With whom to intervene?

- **The patient**
- **The caregiver(s)**
- **The staff**
- **The other resident(s)**

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**

Policy framework

- **DBMAS**
- **7-tiered triangle of organising services**
 - Prevent BPSD
 - Assist at family, AIN level
 - Assist at primary care level
 - Specialist service consultation
 - Specialist service management
 - Hospitalisation
 - Intensive care unit

Brodaty H, Draper B, Low LF MJA 2003

The bio-psycho-social framework

**Socio-
environmental**

Interpersonal

Biological

Psychological

HOW TO INTERVENE:

Environment

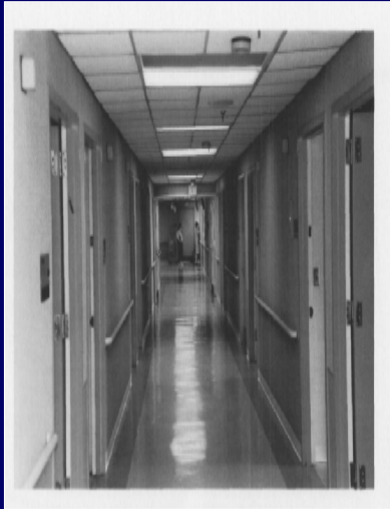
- **Modify environment rather than person**
- **Avoid too much or too little stimulation**
- **Adequate space**
- **Privacy available**

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



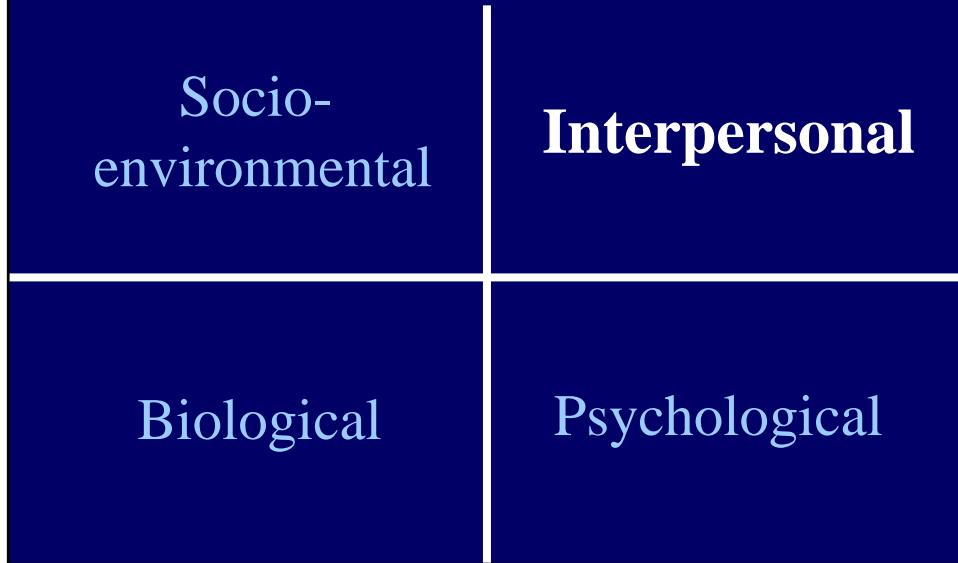
Other environmental therapies

- Bright light therapy → sleep better
- Aroma therapy (lemon balm; lavender oil) → agitation ↓
- Snoezelen → stimulation, agitation ↓
- Visual barriers → exit ↓
- Pet therapy (little evidence)



Multi-sensory stimulation

The bio-psycho-social framework



Interpersonal interventions

- Family education
- Staff education in nursing homes
 - General
 - About medication
 - Specific techniques
 - Dementia Care Mapping, Person Centred care, Progressive Stimulation Thresholds
- Staff support

Hinchliffe et al, 1995; Teri et al, 1997; Rovner et al, 1996; Proctor et al, 1999; Hughes & Medina-Walpole, 2000; Bird et al, 2003; Opie et al, 2002; Edberg & Hallberg, 2001; Buckwalter K et al, 199

Dementia Care Mapping



Professor
Lynn Chenoweth

- Prospective RCT comparing
 - DCM
 - Person-centred care (PCC)
 - Usual care (UC)
- 15 NHS, cluster RCT
- Primary outcome = CMAI
- PCC > DCM > UC

Psychological Interventions

- Usually samples small
- Most pre-post or case controlled
- Few RCTs



Psychological Mx approaches to BPSD

- 1632 studies identified → 162 met inclusion criteria → 9 studies with Level 1 evidence
- Psycho-education for CGs effective; benefits lasted months; other CG intervent^{ns} not effective
- Behaviour Mx techniques centering on individual pts' or CG behaviours → similar benefits
- Residential care staff education beneficial
- Cognitive stimulation similar effects

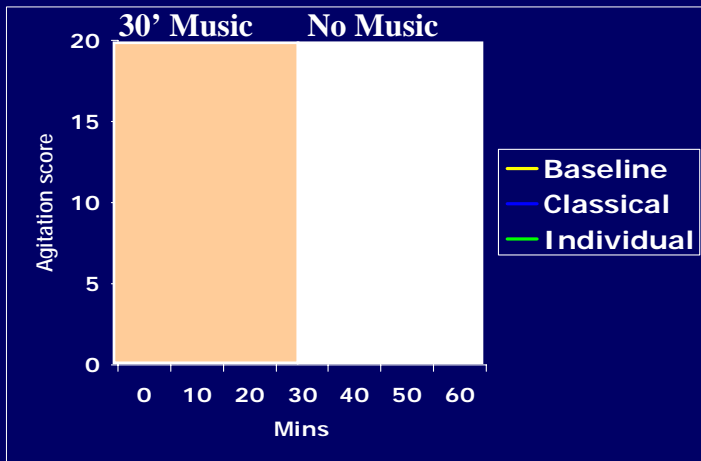
¹Livingston G et al Am J Psychiatry 2005; 162:1996-2021

Conclusions: Psychological approaches to BPSD

- Music therapy) useful during
- Snoezelen) treatment
- ? Sensory stimulation) but not L/T
- Interventions that changed visual environment looked promising, but ...
... >research required

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

Individualised music¹



¹Gerdner L et al, *Int Psychogeriatr* 2000, 12, 49-65

Calming music and/or hand massage

10 min
CMAI
ratings

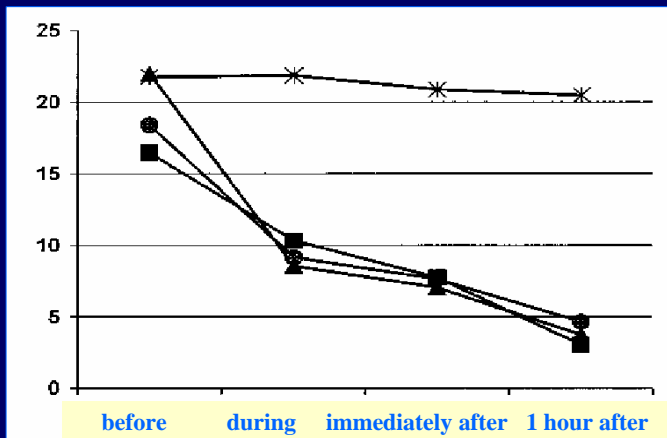


FIGURE 1. Mean agitation scores by treatment group over time. ● calming music; ■ hand massage; ▲ calming music and hand massage together; * control.

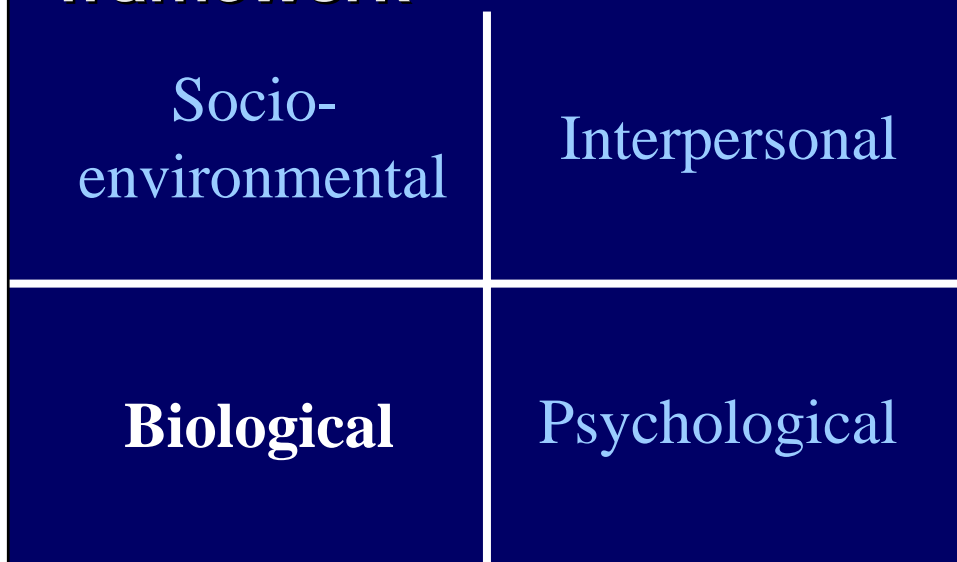
Remington, *Nursing Research*, 2002

Psychological therapies

- Contingency reinforcement →
↓ disruptive vocalisation¹
- Reminiscence groups →
↓ problem behaviours^{2,3} and depression⁴
- Relaxation training → ↓ BPSD⁵
- Predominantly psychosocial approach →
↑ staff attitudes towards residents
compared to pharmacological approach⁶

¹Doyle et al, 1997; ²Baines et al, 1987; ³Gibson, 1994; ⁴Goldwasser et al, 1987; ⁵Welden & Yesavage, 1982; ⁶Bird et al, 2002

The bio-psycho-social framework



Antidepressants for depression

DB RCTs

- Citalopram¹
- Moclobemide²
- Sertraline³
- Nortriptyline⁴

No DB RCTs

- Clomipramine
- Fluoxetine
- Imipramine
- Paroxetine
- Amitriptyline
- Mianserin

¹Nyth et al *Acta Psych Scand* 1992;86:138 - 145

²Roth et al *Bri J Psychiat* 1996;168:149 – 157

³Lyketsos et al *Am J Psychiat* 2000;157:1686-9

⁴Streim et al *Am J Geriatr Psychiat* 2000;8:150-9

Anticonvulsants for agitation, aggression

- Carbamazepine (Tegretol)¹
- Divalproex sodium
(sodium valproate; Epilim)²
- Modest evidence only
- 2nd or 3rd line drug

¹Tariot et al. (1998) *Am J Psychiatry* 155:54-61

²Porsteinsson et al. (2001) *Am J Ger Psychiatry* 9: 58-66

Antipsychotics for agitation, aggression and psychosis

DB RCTs

- Haloperidol^{1,2}
- Risperidone^{2,3,4}
- Olanzapine^{5,6}
- Quetiapine⁷

¹De Deyn PP, et al *Neurology* 1999;53:946-955

²Devanand DP, et al. *Am J Psychiatry* 1998;155:1512-1520

³Katz IR et al. *J Clin Psychiatry* 1999;60:107-115

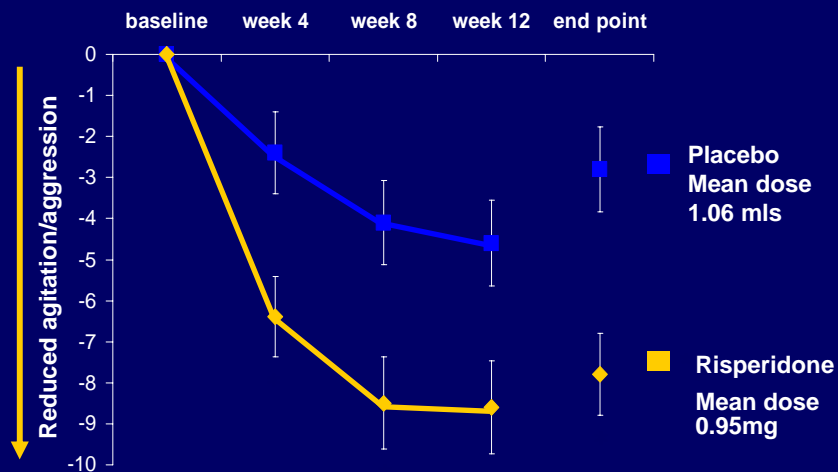
⁴Brody H et al. *J Clin Psychiatry* 2003; 64:134-143

⁵Meehan et al. *Neuropsychopharm* 2002;26:494-502

⁶Street JS et al. *Arch Gen Psychiatry* 2000;57:968-976

⁷Zheng K et al. 2004 ICAD. 22.07.04

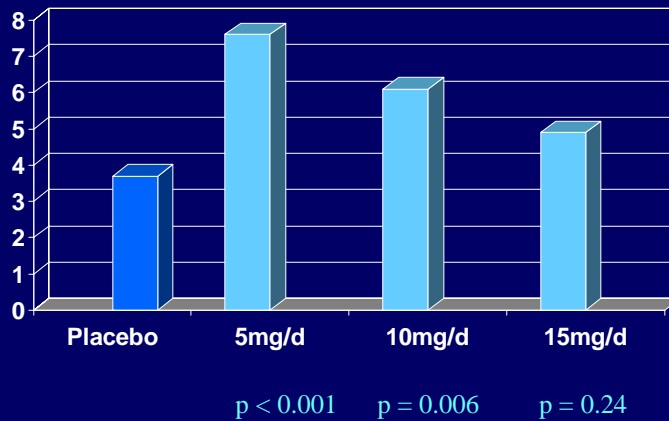
Agitation/aggression in NH residents with dementia (CMAI aggression)



CMAI, Cohen Mansfield Agitation Inventory ¹ Brodaty et al 2003

Olanzapine

Mean Change Scores at 6 weeks



Haloperidol

- No difference in efficacy vs novel
- More EPS side effects
- Cheaper
- Use low dose, start 0.25 - 0.5mg nocte
- Weekly or fortnightly steps of 0.5mg
- Rare to exceed 3 mg/day

Quetiapine for agitation

- Zhong K et al (2004) 200mg/d, but not 100mg/d reduced agitation
- Ballard C et al (2005) quetiapine = rivastigmine = placebo for agitation but cognition worse on quetiapine
- Kurlan R et al (2007) no difference (120mg/d) from placebo

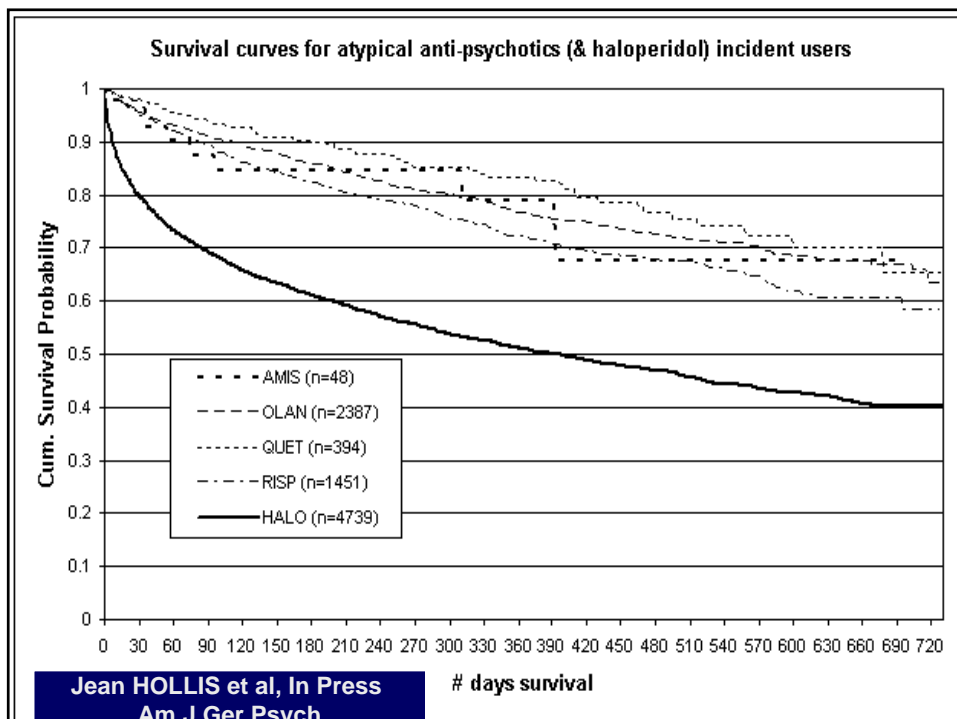
Adverse effects of novel antipsychotics

- Fewer extrapyramidal AEs than traditional antipsychotics, esp. olanzapine, quetiapine
- Less anticholinergic, esp risperidone
- Diabetes
- Cerebrovascular events
- Increased mortality rate
- Cost

CVAEs & deaths with Atypicals

- 2-3x risk of stroke, TIA and death with atypicals - olanzapine and risperidone
- Number of caveats, eg
 - Risks of typical antipsychotics may = or >
 - Large naturalistic surveys are not finding as high risks
 - Risks of EPSE also need to be considered

My practice: continue to use with caution (especially if CV risks) with explanation



Cholinesterase inhibitors for BPSD

- Systematic review & meta-analysis¹
- 29 RCTs with mild-moderate AD
- BPSD: cholinesterase inhibitor group
1.72 points on NPI (6 trials) &
0.03 on adas-noncog (10 trials) vs placebo
- Modest benefit on BPSD
- Individual symptoms > response
 - Apathy, hallucinations

¹Trinh N-H et al *JAMA* 2003;289:210-6

Memantine for BPSD

- Reisberg B et al, 2003 –
memantine v placebo - no effect on
reducing NPI
- Tariot et al – memantine +
donepezil v memantine + placebo
– reduction in NPI

When to stop treatment: Natural history of BPSD ¹

- 86% BPSD appear as single episode
- Overall duration 12 - 24 months
- Duration of each episode 9 - 19 m

¹Hope A et al, 1999

Developments in drug treatments for BPSD

- Risperidone 0.5 - 2mg/day; modal = 1mg
- Olanzapine 5mg/day, up to 10mg/day
- Sodium valproate – titrate dose against response, SEs and therapeutic level
- Carbamazepine - ditto
- Cholinergic agents
- Antidepressants – citalopram, sertraline, venlafaxine, mirtazapine

Conclusions

- Pharmacotherapy effective for BPSD but effects are modest
- First step: determine cause
- Correct reversible factors
- 1st psychological & environmental Mx, except if urgent or st^s concurrent
- Prescribe medications judiciously
- Need medico-legal consent
- *Start low and go slow*
- Review Rx regularly, \geq 3 monthly

An Australian Government Initiative

DCRC
Dementia Collaborative
Research Centres

First
National Dementia Research Forum

Sydney, Australia | 17-18 September, 2007

Translating Research into Practice

Australian Government Dementia: A Health Priority Initiative

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