Dementia and BPSD

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Overview

- Dementia some broad concepts
- Dementia the trajectory
- BPSD
- Aetiology
- Treatments
  - Non pharmacological
  - Pharmacological
What is Dementia?
Vascular Dementia
FAST Scale

• 1 which is normal adult

• 2 which is normal older adult = mild memory loss

• 3 which is early dementia = others notice change in function

• 4 which is mild dementia = difficulty with finances, counting money, and travel to new locations. Memory loss increases.

• 5 which is moderate dementia = They do not need assistance with toileting or eating, but do need help choosing clothing. The patient may not know the date and year or where they live

• 6 which is moderately severe dementia = The person requires more assistance with activities of daily living, such as bathing, toileting, and eating. Patients in this stage may develop delusions, hallucinations, or obsessions. Patients show increased anxiety and may become violent.

• 7 which is severe dementia = all speech is lost. Patients lose urinary and bowel control. They lose the ability to walk.
Early stages
DEMENTIA MODEL—PRODROMES

Prodromes:
- First episode depression and/or anxiety in late life
- Delirium
- New worry
- Behaviour/personality change

MMSE Score

Onset

Duration—Typically 5 to 10 years

End of Life

FAST Scale

Public health
What are BPSD?
What are BPSD?

- Agitation
- Aggression
- Calling out/ screaming
- Disinhibition (sexual)
- Wandering
- Night time disturbance
- Shadowing
- Swearing
- Depression
- Anxiety
- Apathy
- Delusions
- Hallucinations
- Irritability
- Elation/euphoria
Wedding Cake Model of BPSD
BPSD

- Wedding cake model of BPSD

Activities of Daily Living
Cognitive Symptoms

Activities of Daily Living
Activities of Daily Living

Cognitive Symptoms

Behavioural Symptoms

Psychiatric Sx

Neuro Sx
Risk

Activities of Daily Living

Cognitive Symptoms

Behavioural Symptoms

Psychiatric Sx

Neuro Sx
## Potential Risks

<table>
<thead>
<tr>
<th>Harm to self</th>
<th>Harm from others</th>
<th>Harm to others</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delirium</td>
<td>Physical responses to intrusive behaviours</td>
<td>Verbal Aggression</td>
<td>Accommodation loss</td>
</tr>
<tr>
<td>Medical illness</td>
<td>Adverse effects of interventions</td>
<td>Physical Aggression</td>
<td>Carer stress</td>
</tr>
<tr>
<td>Falls</td>
<td>Elder abuse</td>
<td>Sexual disinhibition</td>
<td>Social isolation</td>
</tr>
<tr>
<td>Wandering</td>
<td></td>
<td></td>
<td>Hazardous environment</td>
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<tr>
<td>Accidental injury</td>
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<td></td>
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<tr>
<td>Malnutrition</td>
<td></td>
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<tr>
<td>Undetected co-morbidity (e.g. drug</td>
<td></td>
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<td></td>
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<tr>
<td>and alcohol misuse)</td>
<td></td>
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<tr>
<td>Suicide (esp. in delirium or early</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>stages dementia)</td>
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<td></td>
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</tbody>
</table>
Caregiver Burden
Why is BPSD important

- More than 90% of patients with dementia will experience some of these symptoms.
- Distress caused to people with dementia and to caregivers
- Increased rates of institutionalisation
- Higher rates of complications in hospital
- Faster rate of decline
- Increased mortality
Effects of BPSD

• Greater use of physical restraint
• Greater use of antipsychotics
• Negative influence on other residents
• Higher cost of institutional care (O’Brien J A et al, 2000)
• Increased stress on nursing staff
  – From aggression (Rodney, 2000)
  – From calling out (Draper et al, 2000)
Course of BPSD

- Symptoms of BPSD are episodic making prevention and treatment more complex.

Aetiology of BPSD

Environmental  Interpersonal

Biological  Psychological
## Aetiology of BPSD

<table>
<thead>
<tr>
<th>Environmental vulnerability reduced threshold for stress or stimuli(^1)</th>
<th>Unmet needs; unable to comprehend or make needs known(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurological deterioration – behavioural disinhibition(^4)</td>
<td>Behavioural: triggers and feedback from others control behaviours(^3)</td>
</tr>
</tbody>
</table>

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

Valerie, an 89-year-old woman from a local nursing home, was admitted directly to the general medical ward of a hospital because of confusion. In hospital, she has wandered into other patients’ rooms seeking her husband. On one occasion when a nurse tried to take her back to her bed, Valerie became very angry and tried to hit the nurse. She later said that all her money had been stolen and she wanted to find out who had taken it.

Valerie’s son said that she had been moved to the nursing home three years earlier because she had become “senile” and could not care for herself at home. Nursing staff at the facility reported that she did have a tendency to wander aimlessly, including to other residents’ rooms, but she was always polite and pleasant, and had never been paranoid. Her memory and wandering had been even worse than usual recently.
Assess and treat physical illness

First Priority
Screen for & treat Delirium (see Figure 4.1)

Causes:
- Physical illness
- Infection
- Metabolic
- Haematological
- Cerebral
- Cardiac
- Endocrine

Toxicity
From:
- Mediations
- Polypharmacy
- Alcohol/other drugs
- Anaesthesia

Pain
From:
- Constipation
- Wounds, fractures
- Surgery

Sensory impairment
Including:
- Hearing
- Vision
**Vignette**

Valerie is 89 and experiences behaviour and psychological symptoms of dementia. Her searching for her husband is perceived as aimless and intrusive wandering. When confronted she becomes aggressive.

**A = Antecedent**

Valerie enters another patient's room. Other patient yells and tells Valerie to go to her room. Valerie shouts back at patient and Nurse arrives.

**Re-Assess**

Valerie more agitated, then over sedated

**C = consequence**

Multiple people run to room and doctor called to prescribe medication

**B = behaviour**

Valerie shouts and hits out repeatedly at nurse

**ABC assessment**
## ABC Assessment

<table>
<thead>
<tr>
<th>Date / Time</th>
<th>Antecedent (what happened before the behaviour)</th>
<th>Behaviour (provide details)</th>
<th>Consequence</th>
<th>Re-assess/ Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>25/12</td>
<td>Entered room 12 Other patient yelled to leave; Valerie yelled back.</td>
<td>Ongoing shouting. When nurse arrived, hit her 4 times with closed fist.</td>
<td>All nurses ran to aid. Doctor called. Increasing agitation Medication given.</td>
<td>26/12. Patient slept 12 hours. Unsteady when she woke.</td>
</tr>
</tbody>
</table>
Vignette
Valerie is 89 and experiences behaviour and psychological symptoms of dementia. Her searching for her husband is perceived as aimless and intrusive wandering. When confronted she becomes aggressive.

A = Antecedent
- Increased meaningful activity
  - Label her room clearly
  - Person centred approach and communication
  - Communication board reminding Valerie that she is in hospital

B = Behaviour
- Nurse does not try to physically intervene
- Respects Valerie's personal space and does not approach too close when agitated.
- Uses respectful tone and manner in approach

C = Consequence
- Remove others from risk if required
- Back up staff wait out of sight of Valerie
- Avoid medication unless situation escalates

Re-Assess
Valerie still searches for husband but calm and redirectable

ABC modifications
Treatment Approach

• In general, non-pharmacological approaches are first-line treatment for behavioural and psychological symptoms of dementia (BPSD).
Modify environment

• Modify environment rather than person
• Avoid too much or too little stimulation
• Adequate space
• Privacy or personalised space available
• Secure grounds
• Lighting
• Resident mix
• Non institutional
Design Principles

PRINCIPLE 1: Unobtrusively reduce risks
PRINCIPLE 2: Provide a human scale
PRINCIPLE 3: Allow people to see and be seen
PRINCIPLE 4: Reduce unhelpful stimulation
PRINCIPLE 5: Optimise helpful stimulation
PRINCIPLE 6: Support movement and engagement
PRINCIPLE 7: Create a familiar space
PRINCIPLE 8: Provide a variety of spaces to be alone or with others
PRINCIPLE 9: Provide links to the community
PRINCIPLE 10: Support the values and goals of care
Interpersonal Research

• Skills training for caregivers eg. improved communication, problem solving, role plays, improved recipient experiences
• Education for caregivers
• Activity planning and environmental redesign
• Enhanced caregiver support
• Self care techniques

Interpersonal

- Non pharmacologic approaches with strongest evidence base involve family/care giver interventions

Person centred care, Dementia care mapping

Figure 2: Agitation adjusted for covariates that differed at baseline. Adjusted mean CMAI scores (95% CI) by intervention group.
Through the clinician’s eyes

- Confuses words
- Tries to hit out
- Tries to get out of bed
- Withdrawn/doesn’t join in with others
- Convinced someone is stealing things from his room
- Resists when staff try to assist him with his shower

Through the person’s eyes

- People here speak so quickly
  I need time to think of what I am going to say
- I’m afraid; I don’t know what is happening to me
  I don’t know the people here
- I can’t sleep on my own
  I miss my wife
- I’m bored and I miss my garden
  These people here are not my friends
- I hear things at night. Lights are on during the night
  I can’t find my glasses
- People here are too busy to help me
Psychological

Pharmacology

• “Doctors put drugs of which they know little into bodies of which they know less for diseases of which they know nothing at all.”

Voltaire
Alzheimers Medication Research

When is medication indicated?

- Medication is indicated for BPSD that are moderate to severe and that impact on a patient’s or caregiver’s quality of life, functioning, or that pose a safety concern, often in conjunction with non-pharmacological interventions.
Atlas of variation

5. People who received an antipsychotic: By age (2014), rate per 1,000 (Aged 75-84)

<table>
<thead>
<tr>
<th>DHB</th>
<th>Rate</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auckland</td>
<td>30</td>
<td>434</td>
</tr>
<tr>
<td>Bay of Plenty</td>
<td>26.8</td>
<td>349</td>
</tr>
<tr>
<td>Canterbury</td>
<td>33.5</td>
<td>839</td>
</tr>
<tr>
<td>Capital and Coast</td>
<td>29.7</td>
<td>323</td>
</tr>
<tr>
<td>Counties Manukau</td>
<td>24.3</td>
<td>383</td>
</tr>
<tr>
<td>Hawke’s Bay</td>
<td>28.7</td>
<td>239</td>
</tr>
<tr>
<td>Hutt</td>
<td>28.7</td>
<td>172</td>
</tr>
<tr>
<td>Lakes</td>
<td>28.5</td>
<td>130</td>
</tr>
<tr>
<td>MidCentral</td>
<td>29.1</td>
<td>262</td>
</tr>
<tr>
<td>Nelson Marlborough</td>
<td>33.1</td>
<td>265</td>
</tr>
<tr>
<td>Northland</td>
<td>21.4</td>
<td>189</td>
</tr>
<tr>
<td>South Canterbury</td>
<td>22.7</td>
<td>85</td>
</tr>
<tr>
<td>Southern</td>
<td>32.4</td>
<td>494</td>
</tr>
<tr>
<td>Tairawhiti</td>
<td>25.7</td>
<td>51</td>
</tr>
<tr>
<td>Tarariki</td>
<td>26.1</td>
<td>154</td>
</tr>
<tr>
<td>Waikato</td>
<td>24.4</td>
<td>426</td>
</tr>
<tr>
<td>Wairarapa</td>
<td>27.3</td>
<td>69</td>
</tr>
<tr>
<td>Waitemata</td>
<td>21.6</td>
<td>472</td>
</tr>
<tr>
<td>West Coast</td>
<td>43.6</td>
<td>70</td>
</tr>
<tr>
<td>Whanganui</td>
<td>27.4</td>
<td>102</td>
</tr>
</tbody>
</table>
Polypharmacy in older people

7. People dispensed both an antipsychotic and benzodiazepine or zopiclone: By age (2014), rate per 1,000 (Aged 75-84)

Bar chart: By age (2014), rate per 1,000 (Aged 75-84)
Antipsychotic and Zopiclone use

Chart series: 5. People who received an antipsychotic: By age (2014), rate per 1,000 (Aged 65-74)

Chart series: 6. People who received a benzodiazepine or zopiclone: By age (2014), rate per 1,000 (Aged 75-84)
Who is receiving antipsychotics?

![Graph showing the percentage of people receiving antipsychotics by age and gender for Canterbury males, Canterbury females, BOP males, and BOP females.](image)
What antipsychotics are being prescribed?

<table>
<thead>
<tr>
<th>% of recipients in DHB</th>
<th>Canterbury</th>
<th>Bay of Plenty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methotrimeprazine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risperidone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olanzapine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quetiapine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haloperidol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Canterbury: 0% for Methotrimeprazine, 35% for Risperidone, 5% for Olanzapine, 15% for Quetiapine, 10% for Haloperidol.

Bay of Plenty: 0% for Methotrimeprazine, 25% for Risperidone, 10% for Olanzapine, 20% for Quetiapine, 15% for Haloperidol.
What is the context for the prescription?

- Palliative care - nausea, agitation (41%)
- People with dementia - behaviour, psychosis, mood (38%)
- General population - psychosis, anxiety, other (21%)
- General population - nonpsychiatric (1%)
Who is prescribing?

Approx 1/7

Involved in $\frac{3}{4}$ of cases

Bay of Plenty

Frequency (prescribers)

Number of individuals prescribed to
Antipsychotics

• CATIE- AD large-scale public health study using newer, atypical antipsychotic medications for the treatment of delusions, hallucinations, aggression and agitation in AD dementia

• Important because it considered situations outside residential care

• Follow-up was greater than 12 weeks
Antipsychotics

- 421 participants across 42 sites
- Participants were ambulatory and still living at home or in assisted living facilities
- Family members also participated

- 56% female, average age 78, 73% in own home
Antipsychotics

- placebo-controlled, double-blind,
- randomized to three antipsychotic medications (olanzapine, quetiapine, and risperidone) or placebo (inactive pill).
Biological

• During Phase 1, doctors could adjust a participant’s dose based on the participant’s individual needs and continue for 36 weeks.

• If no benefit then discontinue meds and enter Phase 2

• Phase 2 of the study. Trial on a random basis a different antipsychotic medication
Antipsychotics

• Researchers used the length of time patients stayed on their assigned treatments as the primary measure of treatment success.

• Final doses
  olanzapine (5.5 mg/d)
  quetiapine (56.5 mg/d)
  risperidone (1 mg/d)
Antipsychotics

![Graph showing changes in Neuropsychiatric Inventory total and BPRS total scores over 12 weeks for different treatments.](image)
Antipsychotics

- In phase 1, there were no differences in the length of time in treatment among any of the four treatment groups.
- Those taking olanzapine and risperidone were less likely to cite lack of benefit as a reason to discontinue use.
- Participants assigned one of the three antipsychotic medications were more likely to discontinue use because of intolerable side effects than those taking placebo.
Antipsychotics

- the overall benefit of these medications is offset by intolerability to associated side effects
- Although some patients may benefit greatly from these medications, the evidence from this study suggests these medications hold limited value for the majority of patients.
Limitations to CATIE-AD

- **Suboptimal therapy** - low dosages could have resulted in suboptimal or inadequate responses. Mean daily dose of quetiapine (56.5 mg) is.

- **Choice of outcome** - Time until discontinuation of treatment was selected as primary outcome. How to compare with trials using psych scales?

- **Low event rates** - Event rate was low for cerebrovascular events and death, one must take care to not over-interpret data.

- **Generalizability** - is limited by this study's inclusion of only patients with Alzheimer disease (eg, excluding those with vascular dementia and dementia with Lewy bodies) and of outpatients only (rather than inpatients).
Withdrawal of antipsychotics

• There are several randomized, placebo-controlled studies examining the effects of discontinuing long-term treatment with antipsychotics\(^1\)

• Predictors of successful discontinuation antipsychotics
  – include lower daily doses of antipsychotics.\(^2\)
  – lower baseline severity of behavioural symptoms.\(^3\)

1. (van Reekum et al., 2002; Cohen-Mansfield et al., 1999; Ruths et al., 2008; Ballard et al., 2008).
2. (van Reekum et al., 2002; Ruths et al., 2008)
3. (Ballard et al., 2008).
Overall for antipsychotics

• Both atypical and typical antipsychotics appear to carry an increased risk for mortality and stroke in patients with dementia. These should be prescribed only after discussing risks and benefits, and their use should be re-evaluated frequently when prescribed.

• Atypical antipsychotics are preferred over typical antipsychotics for BPSD.
Overall for antipsychotics

• Antipsychotic medications are most effective in the treatment of psychotic symptoms (hallucinations, delusions), agitation, and aggression.

• All patients should be informed of the potential risks associated with pharmacological treatments of BPSD and monitored accordingly.
Cognitive Enhancers

- Cholinesterase inhibitors and memantine may be useful in treating BPSD; these medications may also provide cognitive benefits unlike other medications.
Cholinesterase inhibitors

Systematic review & meta-analysis
– 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

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

- Antidepressants may be used in the treatment of agitation in dementia as well as for depression in dementia.
Antidepressants

Antidepressants in dementia
Modest evidence of efficacy of antidepressants in treatment of depression in dementia\(^1,2\)

- OR = 2.32, 95%CI: 1.04-5.16
- Best evidence is for sertraline (and citalopram)
- AD may be more responsive than VaD

Some evidence that citalopram useful for agitation, psychosis 3,4, 5
Further trials needed
  - eg combining drug & psychosocial treatment

\(^1\) Bains et al. (2002). Cochrane Review; Issue 4;
\(^4\) Pollock B et al, 2002;
\(^5\) Nieth and Gottfries, 1990.
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

Antidepressant vs Antipsychotic

Citalopram vs Risperidone

• 12 wk RCT of 103 Ss with dementia:
• – 53 citalopram, 50 risperidone
• Significant decrease in agitation score
  (Neurobehavioural Rating Scale) for citalopram, but not
  risperidone
• Citalopram & risperidone both decreased psychosis
  scores (suspiciousness, hallucinations and delusions)

Biological

- Anticonvulsant medications, especially carbamazepine, may be an option for the treatment of agitation when other medications have failed;
- Current evidence does not favour the use of valproic acid.
I’m confused.
No wait...
Maybe I’m not.
Takeaway Points

1. BPSD is complex and requires a good understanding of biological, interpersonal, environmental and psychological factors to make an appropriate intervention.

2. Think non pharmacological first

3. When starting medications consider the target symptoms, monitor and consider when the medication might be stopped.
The End