Grandma did what??
When dementia and acute care meet
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Goals/Objectives
- To identify behavioural symptoms in elderly dementia patients in the acute care setting
- To review predisposing factors and precipitating causes of behaviours
- To discuss the pharmacist’s role in the identification of causes and potential treatment suggestions
- To review the role of antipsychotics & acetylcholinesterase inhibitors in the hospitalized dementia patient

ACUTE CARE
- OBG
- PMHx
- Symptoms
- Diagnosis
- Treatment decisions & Goals

ELDER CARE
- OBG
- PMHx
- Symptoms
- Diagnosis
- Treatment decisions & Goals

Behaviour Changes: A New Form of Communication
- In order to interpret—you need to know baseline
- Acute care healthcare professionals at a disadvantage.
- Gathering needed information can be labour intensive
- Family & other Caregivers know best

Grandma’s Acute Care Adventure

A Change in Behaviour Warrants a Search for a Reversible or Treatable Cause
Behaviours

- Recognize & describe
- Acuity of change
- Frequency or timing of occurrence
- Change in cognition?
- Prior history
- Document

Acute Change

*Acute exacerbation: chronic medical condition(s)*
- CHF, COPD, Arthritis, GERD,
- New medical illness in concert with multiple comorbidities
- Infection, GI bleed, cancer, MI, CVA,
- New psychiatric illness
- Delirium

*Acute exacerbation: chronic psychiatric condition*
- Dementia, bipolar, depression, schiz.

Poorly controlled chronic condition

Behavioural and Psychiatric Changes in the Elderly

- Persistent psychotic features in the elderly—dementia
- Acute onset of behaviours or psychosis—delirium, depression
- Main focus: delirium & presentation in patients with dementia
- BPSD in dementia

Delirium: The Diagnosis

**Core Features:**

A. Disturbance of consciousness with reduced ability to focus, sustain or shift attention
B. A change in cognition (memory, disorientation, language) or
C. Development of perceptual disturbance not accounted for by pre-existing condition
D. Disturbance develops over a short period of time and fluctuates during the course of the day

Etiology of Delirium

- Cholinergic deficiency
- Serotonin excess or deficiency
- Cytokines (interleukin-2, TNF)
- Other neurotransmitters: GABA & dopamine

*Karim S, Byrne EJ. Adv Psychiatr Treat. 2005;11:286-296*
Delirium: Clinical Tools
Confusion Assessment Method (CAM)

**CAM Diagnostic Algorithm:**
1. Acute Onset & Fluctuating Course
   and
2. Inattention
   Plus
3. Disorganized thinking
   or
4. Altered Level of Consciousness

Types of Delirium & Effect of Dementia

**Hypervigilant Hyperactive**
- ~ 25%
- More likely to be identified due to behaviours

**Hypovigilant Hypoactive**
- > 50%
- Least likely to be identified—not causing any problems!
  - Rx may identify as oversedation
  - Mixed

Consequences of Delirium in the Elderly

**Increased:**
- Length of Stay
- Morbidity
- Mortality

Delirium vs none in hospital—mortality post D/C
- 1 yr: 35% vs 22% (p<.001)
- 2 yr: 58% vs 42% (p<.001)

Home-dwelling at baseline:
- 2 yr post D/C: 54% in LTC vs 28% (p<.001)

Delirium independent predictor for mortality:
- @ 1 yr (OR 1.86, 95% CI 1.1-3.1)
- @ 2 yrs OR 1.76 CI 1.1-2.8,
  & for Institutionalization (OR 2.45, CI 1.2-4.9)
  (Pitkala 2005)
Delirium at Discharge:

Medical: 3-16% discharged with delirium:

- **Risk Factors:** Dementia; poor vision; functional impairment; high comorbidity & physical restraint use
- Persistent delirium: worse cognitive & functional outcomes
- Discharged from acute care: 2.6 x mortality or nursing home placement.
- Discharged from ER: (37%): 7x increased mortality

Inouye 2007; Husley 2001

Recognition of Delirium

What's the problem?
- Fluctuating nature
- Overlap with dementia
- Lack of formal cognitive assessment
- Under appreciation of clinical consequences
- Failure to consider diagnosis important.

Assessment of RN knowledge:
- 21% identify hypoactive delirium in patients with dementia; 41% in non demented

Fick 2007

Precipitating Factors:

Surgery
Sleep Deprivation
Environment (ICU, Restraint, Catheter, Emotional Stress)
Neurologic (CVA)

Predisposing Factors:

- Age > 65
- Male
- Drugs
- Comorbid Conditions
- Cognitive Status
- Sensory
- Function
- Hydration

Evaluation

- Gather information: Family
- Optimize communication first
- Non verbal≠ not comprehending
- Routine screening:
  - Instruments—DRS R-98, CAM, NEECHAM
- ALL health disciplines: Report, record any change in behaviour or cognition
- Describe "target" symptoms

“The under recognition of delirium is a daily reminder that what we are now teaching is not working…”

Dr. Ken Rockwood
4th Canadian Colloquium on Dementia
Vancouver. October 2007
EVALUATION: History & Physical

History
- Time course of cognitive changes
- Medication review, including OTC drugs, alcohol

Physical examination
- Vital signs/O2 sats/PAIN
- General medical evaluation
- Neurologic and mental status examination

Interdisciplinary Approach:
- MDs, RN, Rx, family...

Treatment with Antipsychotics

Antipsychotics:
Drugs of first choice
Best available evidence: haloperidol
Symptoms requiring treatment:
Agitated/severe psychiatric symptoms
Prevent self-injury or injury to others
Carry out essential investigation; initiate treatment
NOT for hypoactive delirium?

REGULARLY dosed monotherapy, lowest dose, shortest time
Haloperidol 0.25-0.5mg daily or bid
Risperidone 0.25-0.5mg po daily/bid.
Olanzapine 2.5-5 mg po daily
Additional PRN’s: orders need Max. dose/d
Caution: Lewy Body Dementia, Parkinson’s Disease

Keys to Medical Management

Treat the underlying disease
- Avoid complications
  - Remove indwelling devices ASAP/restraints
  - Hydration
  - Anemia/lytes/O2
- Optimize medications
  - Remove medication contributors
  - Ensure prior medications for behaviours have not been stopped inadvertently
  - Provide adequate analgesia
  - Prevent or treat constipation and urinary retention
  - Encourage proper sleep hygiene, avoid sedatives

Antipsychotics: SIDE EFFECTS

SEDATION
HYPOTENSION
ANTICHOLINERGIC EFFECTS
Peripheral vs Central
FALLS
MOVEMENT DISORDERS: EPS, TD
NMS
Endocrine: Wt gain, diabetes
Morbidity & Mortality: Data in delirium?
Cause: BP, sedation, decreased mobility--
> chest infections, diuretics...

Treatment: Non-Pharmacologic Multidisciplinary approach

- Optimal Stimulation
- Environment more familiar
- Cues for orientation
- Optimize sensory input
- Social Restraints: Family
- Communication poor attention
- Face to face
- Clear, slow, short, simple & repetitive
- Avoid abstract language
- 1 stimulation at a time
- Anticipate needs may prevent behaviours
- Same Faces
Prevention: Modify Risk Factors

**Inouye 1999**
Focused on cognitively impaired medical inpatients N=850, age >70yr.
- Targeted risk factors: 
  - Cognitive impairment, sleep deprivation, immobility, 
  - Visual & hearing impairment, dehydration 
- Total delirium 9.9% in intervention group vs 15% in usual care. (OR 0.60 95%CI 0.39-0.92%)
- Total # days & # episodes also decreased.
  - Severity & recurrence: no change

**Bogardus 2003**
Follow-up study: no benefit evident @ 6 months

**Marcantonio 2001**
Hip Fractures: Geriatric consults N=126
- Targeted risk factors: 
  - Oxygen delivery, fluid/lytes balance, nutrition, mobilization, environment 
- Prevention, early detection and treatment of post-op complications.
- Delirium rates: 32% vs 50% NNT 6
- Decreased severity of delirium
- No change in LOS or discharge destination.
  - No effect on dementia subgroup (N=50)

**Caplan 2005**
Early home rehab:
- New onset delirium: in home 0.6% vs 2.6% (p=0.003)

**Kalisvaart 2005**
N=430, age >70, Hip Surgery
- Delirium risk factors: 
  - Visual impairment, severity of illnesses, cognitive impairment, dehydration
- No effect on delirium
- Decrease in severity, duration & LOS

**Moretti 2004**
Rivastigmine N=246 Not well controlled
- Fewer episodes of delirium, shorter duration, less use of antipsychotics & BZD

**Moretti 2004**
Chronic Refractory delirium
- Donepezil: Case reports

**BPSD:**
**Behavioural Psychological Symptoms of Dementia (BPSD)**
- 85% of Dementia patients will exhibit clinically significant behavioural problems at some point in their illness
- BPSD adversely affects QOL, caregiver burden, daily functioning, cost of care, increases LTC admissions

**Use medications when:**
- Behaviour is frequent & may be amenable to drug treatment
- Behaviour/social/environmental changes are not effective
- Resident at risk of harm to themselves or others
- Basic personal care cannot be done

**Symptoms & Response to Medications**
**Poor Response to medications**
- Wandering, pacing, hoarding, ...
- Constant calling out...

**Symptoms which may respond to antipsychotic medications**
- Delusions/hallucinations/suspiciousness
- Aggressive behaviours
- Irritability
- Sleep disturbances

**Efficacy of Medications**
- No long-term (> 6mo.) efficacy for agitation documented

**Other Options:**
- Carbamazepine
- Antidepressants: Citalopram

Prevention: Modify Risk Factors
Other Treatment Options for BPSD

Cholinesterase Inhibitors:
Some evidence that they may be effective for BPSD
Do they delay onset of BPSD

Carbamazepine:
Better than placebo in several small placebo controlled studies
Problem: Side effects and drug interactions
CVAE not documented

Antidepressants: (Agitation/sexual inappropriate behaviour)
Citalopram:
Multiple small studies for BPSD
Small study (Nov 2007) comparing with risperidone for agitation & psychosis
No statistical difference: Trend citalopram better for agitation, risperidone for psychosis.

Antipsychotics: Morbidity & Mortality in Patients with Dementia
- Re-analysis of multiple trials with the use of antipsychotics for BPSD (duration of most ≤12 wks)
- Outcomes: CVA, TIA, death

As of this week:
Typical & Atypical antipsychotics = risk?
- Shown for risperidone & olanzapine. OR 1.5-1.7 mortality risk. AR: 1.9% incr NNH 52
- Recent study (<12 weeks): CVA events with aripiprazole (7 events vs 0 in placebo)
- 8 deaths vs 3 OR 2.7
- Long term therapy?? Similar risk or not

Non antipsychotic medications:
Mortality significantly different from antipsychotic group
Except: Anticonvulsant group?
Combining antipsychotics—> increased risk
Comorbidity, severity of dementia, males

Cholinesterase Inhibitors: Just a few things….That’s all I can remember

Alzheimer’s Drug Therapy Initiative

October 2007: AchEI coverage commenced

For coverage, diagnosis must be Alzheimer’s Disease (AD), AD with a vascular component, and AD with Lewy bodies or mixed dementia with predominant AD.

Acetyl Cholinesterase inhibitors (AChEIs)

Goals:
- Prolong stay in the community vs LTC
- Decrease or delay BPSD
- Maintain or slow functional loss
- Reduce Caregiver burden
- Cognitive stabilization
**AChEIs: Side effects**

- **GI:** Nausea/vomiting. Most common side effect and most common reason for discontinuing.
- Less common: diarrhea, muscle cramps, bad dreams (donepezil only), syncope, dizziness.
- Possible contraindications: bradycardia or AV block, active peptic ulcers, asthma, seizure disorder (lowers threshold).
- Drug interactions may result from CYP P450 inhibitors or inducers. Anticholinergic drugs may limit efficacy of ChEIs.

**Summary of the most common adverse events by AChEI type**

<table>
<thead>
<tr>
<th>AChEI</th>
<th>Common adverse effects</th>
<th>NNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donepezil</td>
<td>Diarrhea</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Nausea</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Vomiting</td>
<td>7</td>
</tr>
<tr>
<td>Galantamine</td>
<td>Nausea at 21mg/d</td>
<td>5</td>
</tr>
</tbody>
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**Switching ChEIs**

- Lack of tolerability
- Tolerability can be improved by slower, more cautious titration.
- There are limited data on switching for lack of efficacy (especially since stabilization is the primary goal rather than symptomatic improvement).

**Discontinuing AChEIs**

- Stopping AChEIs in mild-moderate Alzheimer’s disease for more than a few weeks may result in irreversible loss of accrued efficacy
- Consider stopping AChEIs when:
  - Alzheimer’s disease is advanced and most ADLs lost
  - Patient is unlikely to realize AChEI benefits because of severe comorbid illnesses
- When stopping AChEIs in late disease, watch for emergence of BPSD and consider restarting if indicated

**Algorithm for Initial Coverage for Cholinesterase Inhibitor for Mild to Moderate Alzheimer’s Disease**

- Step 1: Perform Global Deterioration Scale (GDS) + Medication not covered
- Step 2: Perform Global Deterioration Scale (GDS) + Medication not covered
- Step 3: What is the diagnosis of the dementia? + Medication not covered
  - Alzheimer’s Disease?
    - AD with visual component
    - AD with Parkinsonism/Geriatric Loeys’ bodies
    - AD with other components
  - Non-Alzheimer’s dementia?
    - Medication not covered
- Step 4: In patient able to take their own medication? Do they have the necessary social support to properly administer the drug?

**References**