Medications and the Management of Problem Behaviors In the Elderly

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Outline

- Medication Issues
- Aging and pharmacokinetic/pharmacodynamic changes
- Medication statistics in residential care
- BPSD management
- Mental illness in elderly
- Pharmacist’s Perspective: Prescribing Medications in The Elderly
Objectives

- Discuss how pharmacokinetic and pharmacodynamic parameters change with age
- Explain why elderly in residential care are at increased risk for experiencing Adverse Drug Reactions (ADRs)
- Identify which dementia related behaviours will and will not respond to pharmacological treatment
- Recognize what to monitor when pharmacotherapy is used to manage problem behaviours
Medication Issues

- **SAFTEY**
  - Pharmacokinetics, Pharmacodynamics
  - ADRs, Interactions
  - Polypharmacy

- **Effectiveness**
  - Extrapolating research outcomes to the elderly

- **Compliance**
  - Pill burden, complexity of regimen
Pharmacokinetics:

The journey of a medication through the body can be divided into 4 stages:

- **Absorption** - how does it get into the system?
- **Distribution** - where does it go?
- **Metabolism** - how does the body process it?
- **Elimination** - how does the body get rid of it?
Pharmacokinetics & Aging

**ABSORPTION:** ↓ gastric secretion, ↓ intestinal surface/ ↓ absorptive surface area, ↓ carrier mediated transport systems, ↓ intestinal motility, ↓ mesenteric blood flow, ↓ tissue perfusion

- **Consequences:** Delayed onset of action AND Reduced clinical effect

**DISTRIBUTION:** ↑ total body fat, ↓ muscle mass, ↓ total body water, ↓ integrity in the blood brain barrier (BBB), ↓ albumin, ↑ α1 acid glycoprotein (a transport protein that removes drugs from cells)

- **Consequences:**
  - Fat soluble meds linger longer in the body
  - More medication passing into the brain
  - High medication levels circulating in the blood
Pharmacokinetics & Aging

**METABOLISM:** Liver volume changes as you age (↓ 25 – 35%), hepatic blood flow decreases (up to 40% with CHF), liver enzyme metabolism ↓ (20 – 40% with age)

- **Consequence:** Medications not breaking down as easily

**ELIMINATION:** ↓ renal blood flow (1%/yr after 40 years of age), ↓ GFR (25-50% from 20 to 90 years of age)

- **Consequence:** Drugs stay in the system longer and can accumulate (i.e. greater steady state plasma concentrations)

Pharmacodynamics

The way the medication interacts with its target tissue to produce a physiological effect

Pharmacodynamics & Aging

1) Decreased number of receptors in target organ
   - Ex: Cholinergic, dopaminergic → Giving meds that block these receptors can cause more side effects

2) Cells may respond to receptor occupation differently
   - Older individuals are more likely to experience side effects from receptor occupation (i.e. α1 adrenergic receptors → increased risk of orthostatic hypotension

Pharmacodynamics & Aging

3) Compromised homeostatic mechanisms
As age ↑:
- Impaired cognitive reserve
- Impaired glucose tolerance
- Impaired orthostatic circulatory responses
- Impaired thermoregulation
- Impaired thirst response
- Impaired vascular stability

↑ Sensitivity, decline in homeostatic mechanism
↑ Susceptibility to side effects

Adverse Drug Reactions (ADRs)

- **Four Times More Common in Elderly**
  - 8-21% Elderly in Community
  - 56-74% Nursing Home Residents
- **Polypharmacy**
  - 2 or more meds- risk of ADR=13%
  - 5 or more meds- risk of ADR=58%
  - 7 or more meds- risk of ADR=82%

Drug Interactions

“…psychoactive medications (antipsychotics, antidepressants, sedative/hypnotics) were the medications most often associated with preventable Adverse Drug Reactions (ADRs)”

Medications and the Elderly in Residential Care (RC)

- US study - 40% of nursing home residents receive 9 or more meds (polypharmacy)
  - Most frequent meds prescribed
    - Laxatives (47%)
    - GERD/Peptic ulcer meds (43%)
    - Pain relievers- nonnarcotic analgesics (44%), antiarthritis (31%)
    - Antipyretics (41%)
    - CNS meds- antidepressants (46%), antipsychotic or antimanic meds (26%)
  - Risk factors for polypharmacy: Female, Caucasian, Medicaid (primary payer), had more than 3 co-morbidities, needed assistance with less than or = to 4 ADLS, had a LOS of 3-6 months, were in a small, not-for-profit facility

- Cochrane review lists another reason for polypharmacy:
  - Clinical guidelines

Medications and the Elderly in RC

- **Australian study- Dementia patients**
  - Average # of meds = 9.75/person
  - 30% prescribed an antipsychotic

- **2009 Canadian Report**
  - 53% in health care institutions took 5 or more meds

- **BC PharmaNet Data**
  - 50% of patients in RC were prescribed an antipsychotic

Apr 2010- June 2011


Problem Behaviours

- When is it appropriate to use medications to manage behaviours?
  - Depends on many factors
    - Diagnosis (Delirium/Dementia/Mental Illness)
    - Type of Behaviour
      - Putting self and others at risk of harm
    - Co-morbidities
    - Safety issues
    - Evidence/Effectiveness data
    - Inability to manage with non-pharmacotherapeutic measures
  - Balance Risk VS. Benefit
Types of Dementia

- Alzheimer’s disease (AD)
- Vascular dementia (VaD)
- Dementia with Lewy bodies (DLB)
- Frontal lobe or fronto-temporal lobe dementia (FTD)
- Creutzfeldt-Jakob disease
- AIDS
- Parkinson’s disease
- Huntington’s disease
- Down’s syndrome
- Multiple sclerosis
- Severe alcohol abuse
- Other conditions

www.alzheimers.org.uk
Behavioral and Psychological Symptoms of Dementia (BPSD)

- Agitation/restlessness
- Aggression
- Mood disorders/behavioral disturbances
- Apathy
- Depression
- Psychosis/hallucinations
- Sexual disinhibition
- Elation/euphoria
- Appetite/eating disturbances
- Wandering
- Hoarding
- Inappropriate voiding
- Repetitiveness
- Calling out / inappropriate vocalizations

Symptoms that do not respond to Medication

- Wandering
- Hoarding
- Inappropriate voiding
- Repetitiveness
- Calling out / inappropriate vocalizations

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BPSD Management

- First step: Identify target symptoms/behaviours and Initiate non-pharmacological treatment
  - Address physical, intellectual, emotional, psychosocial, environmental triggers or unmet needs
    - Pain
    - Fecal impaction
    - Other medical illnesses
    - Boredom
    - Loneliness
    - Noise levels
    - Timing of care
BPSD Management

- Pharmacological treatments
  - Use only when alternative therapies are not working, there is risk of harm, symptoms causing distress or suffering

- Agents
  - AChEIs, memantine “may” reduce severity of existing behavioral disturbances
    - agitation/aggression/irritability
    - but not effective for depression, apathy, anxiety
  - Psychotropic agents may be carefully used when AChEI, memantine not effective

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Insufficient evidence to recommend for or against use of SSRIs or trazodone in agitated patients

Valproic acid should not be used for agitation and aggression in AD

Risperidone, olanzapine, aripiprazole can be used for severe agitation, aggression and psychosis

Potential benefit of antipsychotics must be weighed against the increased risk of CV events and mortality
June 22, 2005

Subject: Increased Mortality Associated with the Use of Atypical Antipsychotic Drugs in Elderly Patients with Dementia

Dear Health Care Professional,

Health Canada is advising Canadians that treatment with atypical antipsychotic medication of behavioral disorders in elderly patients is associated with an increased risk for all-cause mortality. Except for risperidone (RISPERDAL), these medications are not approved for use in elderly demented patients.

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Health Canada Endorsed Important Safety Information on Atypical Antipsychotic Drugs and Dementia

June 22, 2005
RESULTS

Conventional antipsychotic medications were associated with a significantly higher adjusted risk of death than were atypical antipsychotic medications at all intervals studied.

CONCLUSIONS

If confirmed, these results suggest that conventional antipsychotic medications are at least as likely as atypical agents to increase the risk of death among elderly persons and that conventional drugs should not be used to replace atypical agents discontinued in response to the FDA warning.
Mental Illness in Elderly

- **Depression**
  - SSRI, bupropion, venlafaxine, mirtazapine

- **Anxiety**
  - SSRIs, Gabapentin, second generation antipsychotics (SGAs), Duloxetine, Mirtazapine, Venlafaxine
  - Benzos - short term only

- **Bipolar**
  - Lithium, Valproic acid, SGAs, lamotrigine,

- **Schizophrenia**
  - SGA and First generation antipsychotics (FGAs)
Pharmacist’s Perspective: Prescribing Medications in The Elderly

- Review all medications
  - Could other meds be contributing to problem behaviour(s)?
  - Simplify the regimen where possible
- Identify target symptoms/goals:
  - Try non-pharmacological methods
- Consider benefit versus risk of pharmacotherapy
- If appropriate, initiate medications
  - Start at lower doses
Pharmacist’s Perspective: Prescribing Medications in The Elderly

Monitor:

● Side effects
  – Sedation, hypotension, worsened confusion, EPS, TD, ECG changes (QTc), hyperglycemia, SIADH

● Effectiveness
  – Is the behaviour improved?
  – How long to trial the med?
    ● Give an adequate drug trial

● Compliance issues
  – Is patient refusing or able to take appropriately
Pharmacist’s Perspective: Prescribing Medications in The Elderly

- Adjust one medication at a time
  - Make dose changes only after steady-state achieved (GO SLOW)
  - Increase dose only if necessary
- Re-evaluate
  - Have the goals been met?
  - Taper regimen when appropriate
Summary

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Questions?