



Preventing Falls in Older Adults

A Matter of Safety

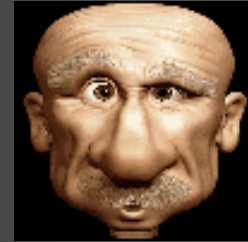
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Overview of Presentation

- Facts About Falling
 - The 6 Risk Factors
 - Understanding Medications Role in Falls
 - How to manage and reduce the risks
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Paul Hall



- Paul is a 75-year-old male living in a long term care facility with a history of hypertension, osteoporosis, Alzheimer's, diabetes, Parkinson's and Schizophrenia, and hallucinations
- A nurses aide went into his room and found him on the floor.

Paul Hall



- He medications are:
- Atenolol 50mg once daily, HCTZ 25mg once daily for hypertension
- a calcium/vitamin D supplement for osteoporosis,
- Aricept 10mg once daily for Alzheimer's,
- Haloperidol 5mg once daily for his Schizophrenia, Alzheimer's, delusions
- Glyburide 5mg and Metformin 1000 mg three times a day for diabetes
- Diazepam 5mg for sleeping and restlessness
- Levodopa/carbidopa 50/200 once daily for Parkinson's
- FBG = 3
- BP = 100/70

Paul Hall

What may have caused his fall?

Falls in Older Adults

- In 2001 the number of seniors over the age of 65 was 13% of the Canadian population
- By 2011 this will increase to 15% and by 2041 will balloon to 23%
- One in 3 Canadians aged 65 or over fall at least once a year. Many of these falls result in serious injuries (hip fractures), and loss of mobility and independence.
- Most falls can be **PREVENTED!**

Falls in Older Adults

- One third of adults over the age of 65 personally experience at least one fall.
- The number increases to one in two for seniors over the age of 80.
- **50-60% of LTC residence experience at least 1 fall.***
- 85% of all hospital admissions in Canadian Hospitals by individuals over the age of 65 years old was a result of fall-related injuries. (The Canadian Institute for Health-1995/96)
- **Direct and indirect healthcare costs for fall-related injuries are more than \$ 3 billion dollars annually in Canada.**

Risk Factors

FALLS



Medication

Lifestyle Choices

Physical Activity

Nutrition

Vision/Hearing

Environment

Understanding Medications

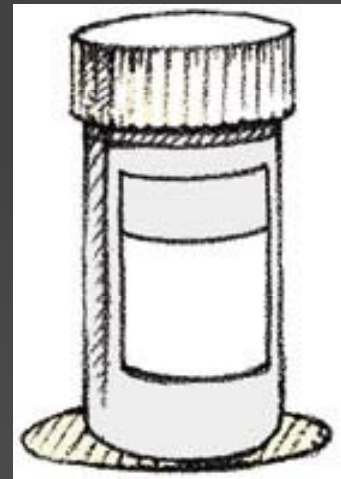
- Adherence is not the major issue
 - Problems related to:
 1. medical conditions
 2. medications prescribed,
 3. misinformation of caregivers,
 4. medication incidents
 5. lack of monitoring.
-

Medication Conditions

Warning Signs

■ Conditions

- Alzheimer's disease/dementias
- Arthritis
- HF/stroke/CVD
- Depression
- Diabetes
- Osteoporosis
- Parkinson's
- COPD



Understanding Medications

- Contribute to falls primarily because of:
 - Too many
 - Too much
 - Drug interactions
 - Side Effects

Too Many

Warning Signs

- 85% of older adults take at least one medication
- 48% of older adults take 3 or more medications
- LTC resident will receive approximately **eight to 10** medications per month in Ontario
- The number of medications that a residents take is directly associated with their fall risks

Too Many

Benefit of meds
VS
Associated risk

} Quality of Life

Too Many

“Prescribing Cascade”

Happens when a side effect or adverse drug reaction is misinterpreted as a new diagnosis, resulting in unnecessary additions to the drug regime.

Too Many

- “Any symptom in an elderly patient should be considered a drug side effect until provided otherwise” Gurwitz (1995)

Too Many

- Paul Hall
 - Taking 9 medications
 - Prescribing Cascade
 - Haloperidol
 - Diazepam

Too Much

- Inappropriate dose:

- text book dosing

- Aging:

- body systems

- Lower dose

- Start slowly

Geriatric Dose

$\frac{1}{2}$ to $\frac{1}{4}$ dose and titrate slowly

Too Much

- Paul Hall
 - Metformin 1000mg TID?
 - FBG= 3
 - Diazepam 5mg?
 - Correct medication
 - Atenolol 50mg QD?
 - decrease or eliminate

Side Effects

Side effect :

“unwanted, often negative, consequence associated with the use of a given medication”

Side Effects

Common medications that can have an increase risk of falls are: see table

1. Antidepressants
2. Antipsychotics
3. Benzodiazepines
4. Anti-hypertensives: ACE inhibitors, ARBs, beta blockers, calcium channel blockers, vasodilators
5. Anti-hyperglycemics
6. Alzheimer's drugs
7. Narcotics
8. OTC/Herbal: dimenhydrinate, diphenhydramine, valerian root, melatonin
9. Alcohol
10. "Anticholinergic effects"

Side Effects Anticholinergics

Anticholinergic agents

is a substance that blocks the neurotransmitter acetylcholine in the central and peripheral nervous system.

Side Effects Anticholinergics

- Medications with Anticholinergic effects*
 1. Tricyclic antidepressants (amitriptyline)
 2. Antihistamines (diphenhydramine, hydroxyzine)
 3. Gastrointestinal antispasmodics (hyoscine)
 4. Parkinson medications (trihexyphenidyl)
 5. Opioids (codeine)

Side Effects Anticholinergics

- Symptoms are*:
 1. Ataxia-loss of coordination
 2. Xerostomia-dry mouth
 3. Increase body temperature
 4. Increase heart rate
 5. Increase intraocular pressure
 6. Memory problems
 7. Constipation

Side Effects Extrapyramidal Symptoms (EPS)

Extrapyramidal Symptoms
symptoms that manifest themselves in
various movement disorders..

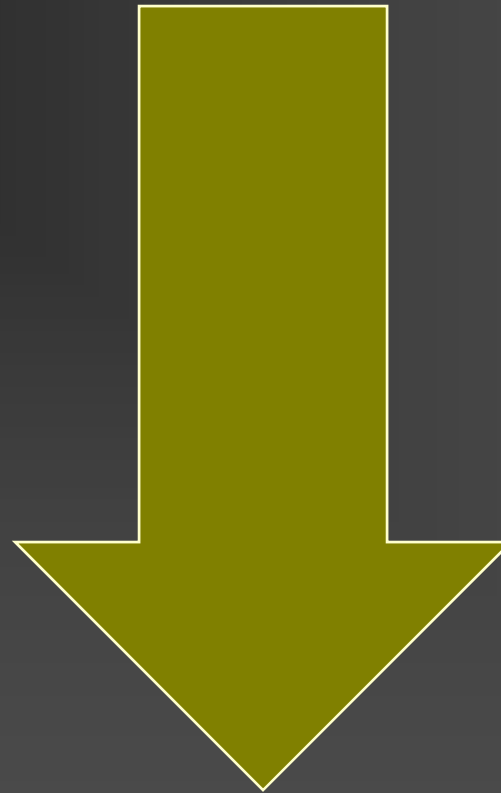
Side Effects

Extrapyramidal Symptoms (EPS)

- Antipsychotics have EPS
- can be used for:
 - Alzheimer's-Behavioural disturbances associated with dementias
 - (agitations, depression, insomnia, and hallucinations)*
 - Parkinson's-dementias

Extrapyramidal Symptoms (EPS)

Haloperidol
Loxapine
Risperidone
Olazapine
Quetiapine



Most EPS

Least EPS

Extrapyramidal Symptoms (EPS) Side Effects

- Involuntary movement
 - Tremors and rigidity
 - Body restlessness
-
- **Treat with Valium?**

Side Effects

- To reduce possible side effects:
 - Give the lowest effective dose of a particular medication

LOW AND SLOW

Drug Interactions

Drug Interaction examples:

- Benzodiazepines (Diazepam) and Amitriptyline – increased drowsiness, anticholinergic effects (dry mouth)
- Benzodiazepines and Cimetidine (heart burn) – enhanced side effects of benzodiazepines
- Nifedipine and Atenolol – hypotension (low blood pressure) and heart failure
- Tricyclic antidepressants and Anticholinergics – enhanced anticholinergic effects

Drug interactions

- Drug interactions
 - “occurs when a drug, food, natural product, or disease affects the activity of a medication.”
 - Can be a result of adding, discontinuing or changing the dose of a medication.
 - Increase, Decrease, or a New Effect may occur
 - Contribute to falls by increasing side effects associated with the resident’s medications

What to Remember When Assessing Medications

- Age changes drug absorption, metabolism, distribution, and excretion as well as patient response to therapy
- People age at different rates – use low doses and keep regimens as simple as possible
- Assess risk/benefit ratio
- Consider alternative medications
- Give the lowest effective dose and increase slowly (**LOW AND SLOW**)
- Discontinue unnecessary medications gradually
- Avoid the “**prescribing cascade**”

Reduce the Risk

Pharmacist's Role

- **Do med review (every 6-12 months)**
- Look for drug interactions
- Multi-medical conditions
- Discuss SE like drowsiness, visual disturbance, postural disturbances, hypotension, anticholinergic side effect with team
- Involve family and other healthcare team



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Questions





Thank You

Developed and Presented

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References

Websites

- <http://www12.statcan.ca/english/census/index.cfm> (Statistics Canada)
- www.phac-aspc.gc.ca/pau-uap/paguide/older/index.html (Canada's Physical Activity Guide for Older Adults)
- www.hc-sc.gc.ca/fn-an/food-guide-aliment/index_e.html (Eating Well with Canada's Food Guide)
- www.phac-aspc.gc.ca (Public Health)
- www.ageopportunity.mb.ca (Age & Opportunity Inc.)
- www.wrha.mb.ca (Winnipeg Regional Health Authority)
- www.winnipeginmotion.ca
- www.cmaj.ca
- www.hc-gc.ca/seniors-aines/pubs/falls_Prevention/fallsprevtn7_ehtm (You can prevent fall: Falls Prevention Resources)

References

Publications/Professional Groups

- Winnipeg Regional Health Authority, Stepping Out with Confidence
- Winnipeg Regional Health Authority's: Take Action...to prevent falls
"Staying On Your Feet Taking Steps to Prevent Falls"
- Medication and Falls in Elderly: by Natalie Brooks from MediSystem Pharmacy-
Barrie ON
- CPJ-July/August 2004, Vol 137, NO. 6 **Medications and Falls in the Elderly:**
Brent Ruddock
- Pharmacy Practice-July 2006, **Preventing and managing drug-related
problems in long-term care:** Rosemarie Patodia
- **Professional and Organization Groups:** Physiotherapists, Podiatrist,
Occupational therapists, Health Unit, Gerontologist, Volunteer organizations,
Optometrist, Seniors organizations, Dietician, Family physician.