

Update on Assessing and Managing the Falling Patient and the Use of Gait Aid Devices in the Community

Dr. Arielle Berger, MD | Dr. Vicky Chau, MD
Geriatrics Outpatient Lead | Geriatrics Education Coordinator

Toronto Rehabilitation Institute
550 University Avenue
Toronto, Ontario M5G 2A2
October 31, 2014

Disclosure

- Faculty:
 - Arielle Berger
 - Vicky Chau
- Relationships with commercial interests:
 - Grants/research support – N/A
 - Speakers Bureau – N/A
 - Consultant – N/A

Objectives

- To provide an update on the latest evidence related to assessing and managing the falling patient
- To review the use of gait aid devices
- To share falls-related programs at the Toronto Rehabilitation Institute (TRI)

Seniors' Falls in Canada

- A third of community dwellers 65 years and older fall annually
- Approximately 75% occurred while walking on any surface (45%), snow/ice (16%), and stairs (13%)
- Majority of injuries resulted in fractures (35%) and sprain/strain (30%)
- More than 75% older adults sought medical treatment in the emergency department (67%) and doctors office (16%)

Case – Bob

- 83-y/o widowed man who lives in a house alone
- Presents to your office complaining of right sided rib pain the day after falling while trying to catch the bus
- Fractured 2 other ribs in the past from similar situations

Bob's Case cont'd

Past Medical History

- TIAs
- CAD
- Diabetes
- HTN
- Macular degeneration
- Bilateral hearing loss
- OA
- Depression

Medications

- ASA 81 daily
- Metoprolol 50mg bid
- Ramipril 10mg daily
- Amlodipine 10mg daily
- Nitropatch 0.4mg daily
- Atorvastatin 40mg qHS
- Metformin 1000mg bid
- Glicazide 30mg daily
- Citalopram 40mg daily
- Vitalux 1 tab daily
- Tylenol PRN

Bob's Case, Cont'd

Social History

- Widowed for 2 years
- 2 sons live out of town
- Independent with BADLs, uses cane for ambulation, difficulty with grocery shopping due to pain in knees

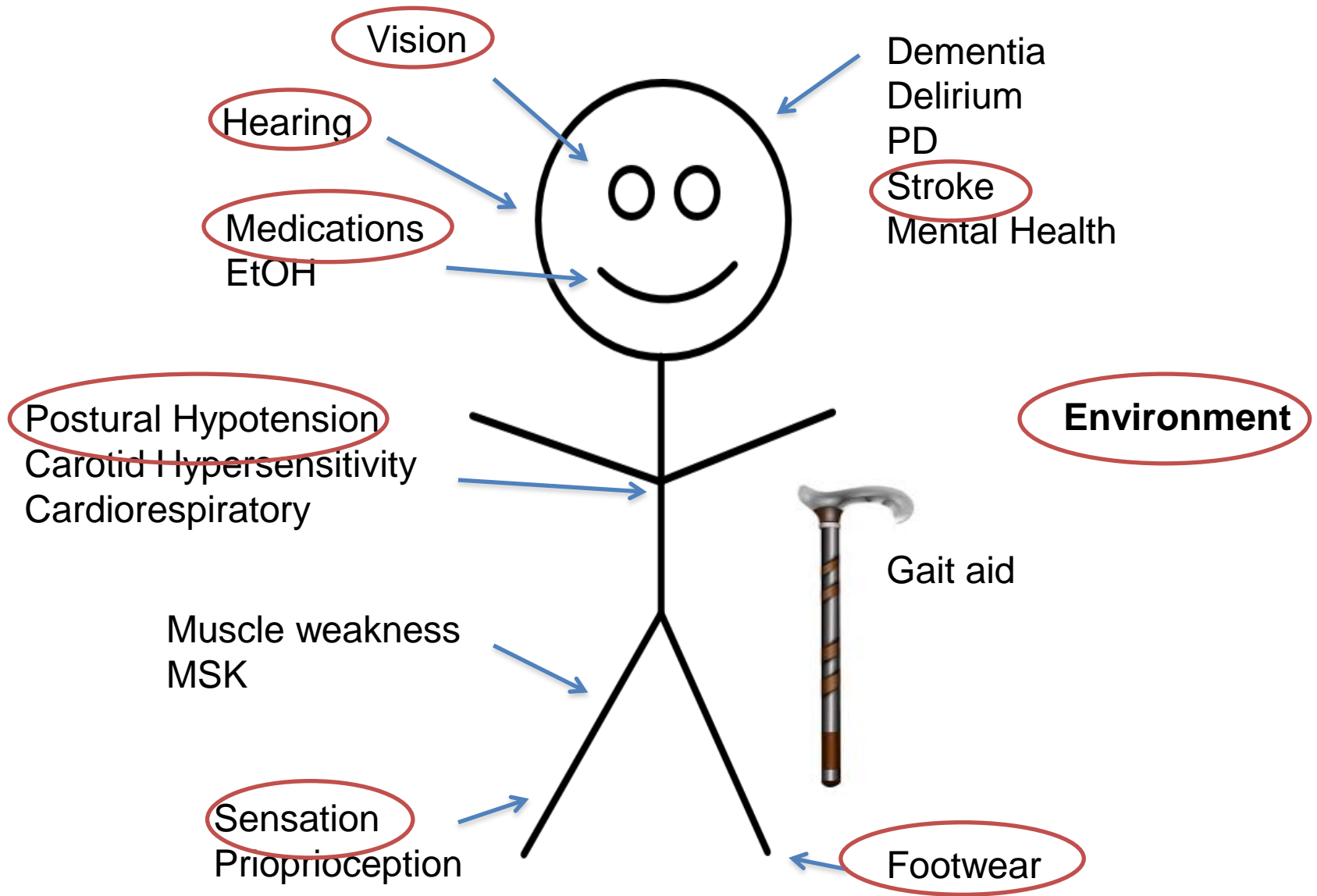
Review of Systems

- Wears bifocals
- Knee pain not well managed

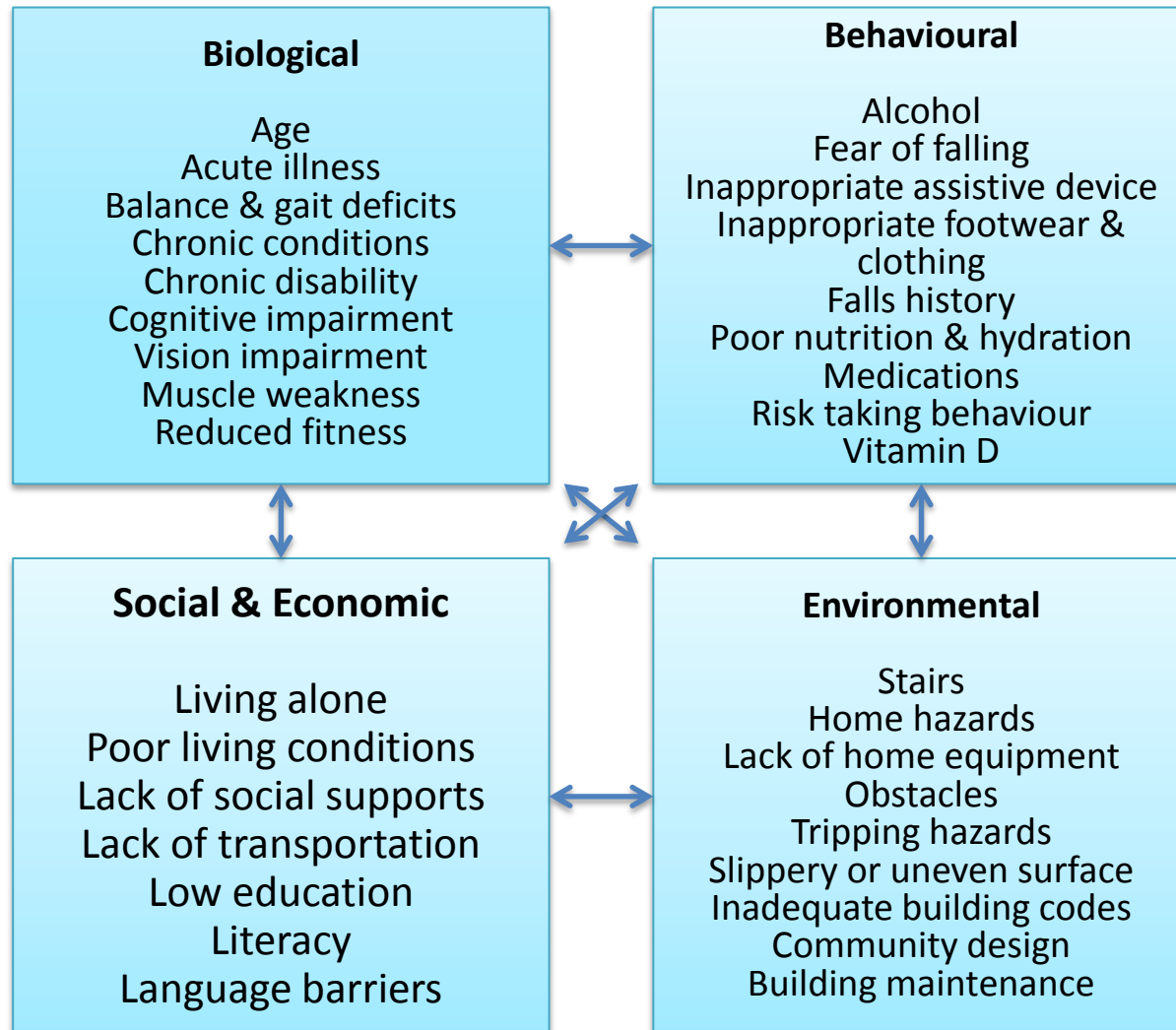
Physical Exam

- BP sitting 115/70, standing 98/60, HR 60, regular
- Vision 20/40, wears bifocals
- Cardiac – nil
- Neurological
 - No (extra)pyramidal signs
 - Slightly decreased fine touch sensation in his feet
- TUG > 15 secs
- MSK – OA in knees
- Foot – Loose sandals

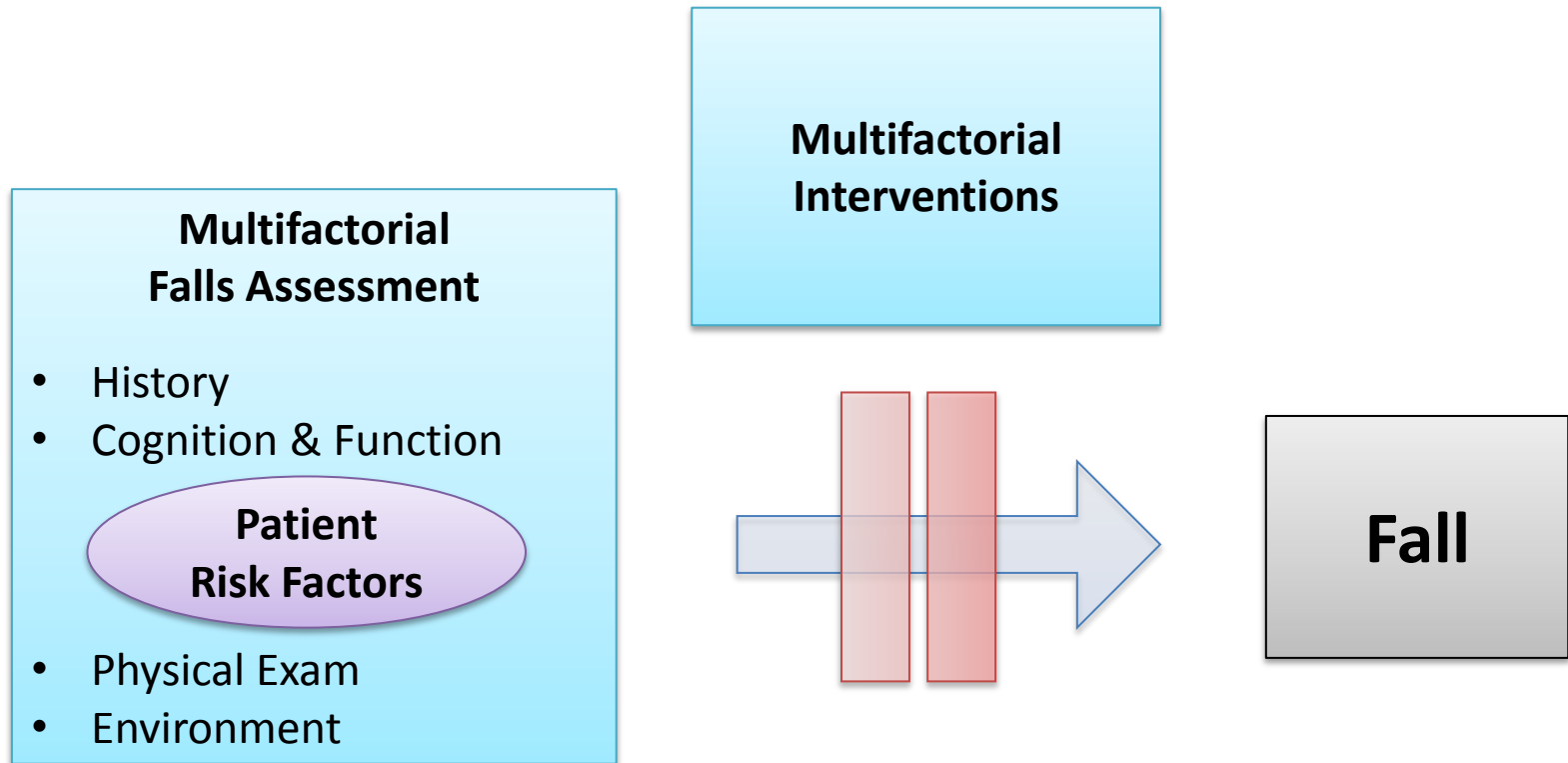
Approach



Risk Factors



Falls Prevention



1. AGS/BGS. Summary of the Updated American Geriatrics Society/British Geriatrics Society Clinical Practice Guideline for Prevention of Falls in Older Persons. JAGS. 2011.
2. Public Health Agency of Canada. Seniors' Falls in Canada: Second Report. 2014.

Which intervention to reduce falls is supported by the evidence?

- A. Multifactorial assessment
- B. Vitamin D supplementation
- C. Bilateral cataract extraction
- D. Withdrawal of inappropriate medications
- E. Exercise Program

Exercise

- Multicomponent Exercise Program: RR of falling 0.85
- Home-based Exercise: RR of falling 0.78
- Tai Chi: RR of falling 0.71



Multifactorial Interventions

- In-depth multifactorial risk assessment and comprehensive management
 - Tinetti 1994: 31% decrease in fall incidence
 - Cochrane: reduced rate of falls (RaR 0.76) but not risk of falling
 - Likely beneficial for high risk adults getting good follow up

Vitamin D

- Low vitamin D levels are associated with increased risk of falls
- Does treatment help?
 - Cochrane: RR 0.96
 - USSTF: RR 0.87
 - Heterogeneity in populations, Vitamin D levels at baseline, supplementation dose
 - Probably helpful, especially in ppl with low Vit D levels



Gillespie LD et al. Interventions for preventing falls in older people living in the community. Cochrane Database of Systematic Reviews 2012, Issue 9. Art No.: CD007146.

Moyer VA. Prevention of falls in community-dwelling older adults: US Preventive Services Task Force recommendation statement. Annals Intern Med. 2012;157:197.

Vision



Wear single lens distance glasses
– Those who regularly participate in outside activities



Remove first cataract (RaR 0.66)



Consider CNIB referral
– Macular degeneration
– Diabetic retinopathy

Medication Review



- Highest risk meds:
 - Psychotropics
 - Anticholinergics
 - Antihypertensives

Environmental & Home Modifications



HEALTHY HOMES
RENOVATION TAX CREDIT

- Home safety assessments and modifications are associated with more than 20% fewer injuries annually from falls
- RaR 0.81, 95% CI 0.68 to 0.97

1 Grab bars around the toilet

2 Warm blankets

3 Hand-held shower on an adjustable rod

4 Lowering existing



Receive 15% back on up to \$10 000 home modifications

<http://www.ontario.ca/taxes-and-benefits/healthy-homes-renovation-tax-credit>

Gait Aid Assessment & Monitoring

- Gait aid?
 - Cane, walker, wheelchair
 - Gait observation
- Use?
 - Height
- Condition?
 - Hand grips
 - Legs
 - Cane Tips
 - Wheels
 - Brake conditions

Single Point Cane (SPC)

- Mainly for unilateral and/or mild balance impairment
- Standard vs. offset cane
- In/outdoors, stairs
- May be used in conjunction with another gait aid



2 Wheeled Walker (2WW)

- Bilateral and/or moderate balance impairments
- Features
 - Unidirectional front wheels vs. swivel
 - Rear skis vs. auto-stop mechanism
 - Portable
- Used in a variety of cognitive, medical, and physical disabilities
- Commonly used in home (indoors), hospitals, LTC, and rehab



4 Wheeled Walker (4WW/Rollator)

- Enhances walking in higher functioning individuals with fair balance, although can be used in lower functioning patients with limited endurance
- Features
 - 4 wheels, front swivel, bilateral hand brakes, seat, folding mechanism
 - Modifications
- Used in a variety of cognitive, medical, and physical disabilities
 - Caution: moderate cognitive and functional impairments
- Typically used outdoors



How Do You Measure a Cane/Walker?

While standing in an upright position with arms relaxed at the sides, where should the height of cane/walker be measured?

- A. At the level of the palm to optimize balance
- B. At the level of the wrist crease
- C. Above the level of the wrist for easy access
- D. Appropriate cane/walker height depends on patient preference

How Do You Use A Cane?

When using a cane, it should be held:

- A. In a position most comfortable to the patient
- B. On the same side as the affected limb
- C. The affected limb does not influence how the cane is used
- D. On the opposite side of the affected limb

How Do You Measure the Seat Height of a Walker Appropriately?

The walker seat height is measured when the patient seated with their:

- A. Feet flat on the floor, knees at 90-120
- B. Feet flat on the floor, knees at 130-160
- C. Toes touching the floor, knees at 90-120
- D. Feet flat on the floor, knees at 80



MINISTRY OF HEALTH AND LONG-TERM CARE

Ontario

ADP - Assistive Devices Program

- Provides consumer centred support and funding for a variety of assistive devices to Ontario residents with physical disabilities
- Pays up to 75% of the equipment costs, including walkers and wheelchairs
- Valid Ontario Health Card with greater than 6 months physical disability
- Assessment and equipment prescription by an ADP certified health care professional

Falls Prevention Program

- Appropriate for community-dwelling older adults with a history of falls or at high risk for falls
- One-time inter-professional comprehensive assessment
- 12-week group exercise and education program

Geriatric Day Hospital

- Outpatient rehab program for community dwelling older adults requiring 2 or more modalities of therapy, including:
 - PT
 - OT
 - SLP
 - Recreation Therapy
 - Social Work
 - Nursing
- Program is individualized, therapy in smaller groups
- 12-week program, two visits/week
- Medical care overseen by a geriatrician

FPP vs. GDH

Falls Prevention Program		Geriatric Day Hospital
Ideal Patient	≥ 65y with falls or high risk for falls	Generalized functional decline; falls+
Exclusion	<ul style="list-style-type: none">• Cannot speak English• Cannot hear/understand group instructions• Non-ambulatory	<ul style="list-style-type: none">• Non-ambulatory- may not be able to participate in PT• Advanced dementia
Special considerations		<ul style="list-style-type: none">• Can accommodate patients requiring accompaniment for cognitive, functional or language barrier reasons
Fax number	Fax: (416) 597-7074	Fax: (416) 597-7066

Case Conclusion

- Gradually reduce and/or discontinue unnecessary medications
 - Specifically, decrease amlodipine with a goal BP closer to 140 systolic and/or resolution of postural drop
 - Titrate off citalopram slowly since no longer depressed
- Vision
 - Advise single lens glasses
- Vitamin D supplementation
- Environment/Behavior
 - Education about safe use of TTC
 - Appropriate footwear
 - CCAC OT in-home safety assessment
- Falls Prevention Program
 - Further education
 - Exercise program
 - Gait aid reassessment

Summary

- Falls are common and are a large source of morbidity
- Falls are a result of a complex interaction of biological, behavioural, social & economic, and environmental risk factors
- Falls prevention requires multifactorial assessment and interventions for the falling older adult
- Falls prevention programs are available resources in the community

Acknowledgements

- Physiotherapists
 - Andrea Diaz Domonkos
 - Aliza Neuhof
- Occupational therapists
 - Alison Ha

References

- AGS/BGS. Summary of the Updated American Geriatrics Society/British Geriatrics Society Clinical Practice Guideline for Prevention of Falls in Older Persons. JAGS. 2011.
- Bradley et al. Geriatric Assistive Devices. AAFP. 2011; 84(4):405-411.
- Cameron et al. Interventions for preventing falls in older people in care facilities and hospitals. Cochrane Database Syst. Rev. 2012 Dec 12; 12:CD005465.
- Gillespie et al. Interventions for preventing falls in older people living in the community. Cochrane Database Syst Rev. 2012. Sept 12; 9:CD007146.
- Lam et al. Canes and Walkers: A Practical Guide to Prescribing. Geriatrics & Aging. 2009; 12(5):264-266.
- Moyer et al. Prevention of falls in community dwelling older adults: U.S. Preventive Services Task Force recommendation statement. Ann Intern Med. 2012;157:197-204.
- Robinovitch et al. Home-safety modification to reduce injuries from falls. The Lancet. 2014; Sep 23: doi:10.1016/S0140-6736(14)61188-0.
- Public Health Agency of Canada. Seniors' Falls in Canada: Second Report. 2014.
- www.health.gov.on.ca/en/public/programs/adp/default.aspx#