Assessment & Management of Falls in Clinical Practice – Falls Prevention Clinics

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April 20, 2018
Faculty/Presenter Disclosure

• **Faculty:** David B. Hogan

• **Relationships with financial sponsors:** None to Declare
Objectives

• At the end of the session participants will be able to:
  - Describe evidence-based guidelines for assessment & management of fall risk (DH)
  - Outline the results of a scoping review on fall prevention clinics
    • Models found in Canada (KM, DH)
  - Based on the above/ general discussion, describe the characteristics of an effective & sustainable fall prevention clinic (all)
Evidence-based Approach
Fall Prevention

• Examples of guidance
  – Cochrane Systematic Review 2012 – Cochrane Database of Systematic Reviews 2012, Issue 9
Summary of the Updated American Geriatrics Society/British Geriatrics Society Clinical Practice Guideline for Prevention of Falls in Older Persons

Prevention of Falls in Older Persons Living in the Community

1. Older person encounters healthcare provider
   [A]

2. Screen for fall(s) or risk for falling
   (See questions in sidebar)
   [B]

3. Answers positive to any of the screening questions?
   (See sidebar)
   [C]

4. Does the person report a single fall in the past 12 months?
   [D]

   Yes
   [E]

   No

   5. Evaluate gait and balance

   Yes
   [F]

   No
   [G]

6. Are abnormalities in gait or unsteadiness identified?
   [H]

   Yes
   [I]

   No
   [J]

7. Any indication for additional intervention?
   [K]

   Yes
   [L]

   No

8. Initiate multifactorial/multicomponent intervention to address identified risk(s) and prevent falls:
   1. Minimize medications
   2. Provide individually tailored exercise program
   3. Treat vision impairment (including cataract)
   4. Manage postural hypotension
   5. Manage heart rate and rhythm abnormalities
   6. Supplement vitamin D
   7. Manage foot and footwear problems
   8. Modify the home environment
   9. Provide education and information

   Reassess periodically

Sidebar: Screening for Fall(s) Questions

1. Two or more falls in prior 12 months?
2. Presents with acute fall?
3. Difficulty with walking or balance?

Journal of the American Geriatrics Society
Algorithm for Fall Risk Assessment & Interventions

Patient completes Stay Independent brochure

Screen for falls and/or fall risk
Patient answers YES to any key question:
- Fell in past year? If YES ask,
  - How many times? and,
  - Were you injured?
- Feels unsteady when standing or walking?
- Worries about falling?

NO to all key questions

YES to any key question

Evaluate gait, strength & balance
- Timed Up & Go (recommended)
- 30 Second Chair Stand (optional)
- 4 Stage Balance Test (optional)

No gait, strength or balance problems*

Gait, strength or balance problem

≥ 2 falls
- Injury
- Follow up with HIGH RISK patient within 30 days
  - Review care plan
  - Assess & encourage fall risk reduction behaviors
  - Discuss & address barriers to adherence
  - Transition to maintenance exercise program when patient is ready

1 fall
- No injury
- Conduct multifactorial risk assessment
  - Review Stay Independent brochure
  - Falls history
  - Physical exam including:
    - Postural dizziness/postural hypotension
    - Medication review
    - Cognitive screen
    - Feet & footwear
    - Use of mobility aids
    - Visual acuity check

0 falls
- HIGH RISK Individualized fall interventions
  - Educate patient
  - Vitamin D +/- calcium
  - Refer to PT to improve gait, strength & balance
  - Manage & monitor hypotension
  - Modify medications
  - Address foot problems
  - Optimize vision
  - Optimize home safety

LOW RISK Individualized fall interventions
- Educate patient
- Vitamin D +/- calcium
- Refer for strength & balance exercise (community exercise or fall prevention program)

*For these patients, consider additional risk assessment (e.g., medication review, cognitive screen, syncope)
Approaches - Single and Multiple Component

- With single or multiple component interventions the same treatment is offered to all people
- No tailoring – when multiple could include, as an example, the following
  - Supervised exercise
  - Education
  - Home-hazard identification
Multifactorial Approach

• Based on beliefs that
  – Presence of multiple fall risk factors that appear in various combinations
  – Multifactorial fall risk assessment with interventions tailored to identified factors would be effective

• Components always included
  – Patient engagement/ education
  – Exercise program – balance, gait, &/or strength training (+/- endurance & flexibility training) in groups or individualized program
Multifactorial Approach

• Other component if identified risk factor – an incomplete list of other interventions for identified risk factors would include:
  – Withdraw/ minimize psychoactive & total number of meds
  – Vitamin D (+/- calcium) if proven/ suspected deficiency
  – Home hazard modifications for select patients (i.e., higher risk)
  – Management of postural hypotension
  – Management of foot problems & advice re footwear
  – Vision - expedited cataract surgery, avoid multifocal lenses while walking (especially on stairs)
  – Dual chamber cardiac pacing for older patients with cardioinhibitory carotid sinus hypersensitivity with syncope/ falls
Comparison

• Single interventions (e.g., exercise – most common) as effective in reducing falls as interventions with multiple components (both decrease falls by 20-30%)
  – Multifactorial fall prevention interventions effective for high risk individual patients
  – For lower risk populations in the community, targeted single interventions are as effective, may be more acceptable, and more cost-effective — Age Ageing 2007, 36: 656-62
Scoping Review
Most Don’t Receive Recommended Post-fall Care

• Fall prevention activities post ED visit for fall-related injury
  – 71% talked to HCP about fall-related ED visit
  – Only 37% talked re what to do to reduce fall risk
    • 2% contacted a fall prevention program and none attended
  – 14% fell again within 60 days – Injury Epidemiology 2017, 4:18

• 3.7% received post-discharge care consistent with AGS/BGS guidelines – Osteoporosis International 2006, 17: 672-83
Causes of Research-Practice Gap

• Patient/ client
  – Access, cost, and time
  – Beliefs and attitudes (priority given to falls)

• Practitioner
  – Usually reactive rather than proactive
  – Attitudes, knowledge (clinical, available services), skills (clinical, coordinating services, teamwork), and available time
  – Interaction with patient/ client (motivating)
Causes of Research-Practice Gap

• System
  – Challenges linking components (detection, assessment, care plan, implementation) and ensuring they are actually done
  – Availability of programs - ? “turnkey” option
  – Reimbursement (practitioners)/ funding (programs)
Fall Prevention Clinics

• Definition – Multidisciplinary/interdisciplinary/interprofessional ambulatory program for community-dwelling, fall-prone older persons
  - Primary aim of service is to reduce falls & fall injuries
  - Clients assessed for risk factors with interventions implemented for those identified (multifactorial approach)

• Scoping review (n = 24); other than Close (1999) strongest evidence from Chaos RCT (Finland)
  - 2 clinics (nurse, PT, MD); 70+ & increased fall/ # risk (n = 1314); all seen by 3 disciplines; randomization (control – brochure vs. intervention – individually tailored measures based on clinic assessment and HV supervised by clinic personnel [~5]) – Injury 2014, 45: 265-71.
Chaos Clinic Outcomes

**Intervention**
- Falls – 95 per 100 PY
- Fallers – 63
- Fall-induced injuries – 55
- Fractures – 5

**Control**
- Falls – 131 per 100 PY (RR 0.72, 95% CI 0.61-0.86; p < 0.001)
- Fallers 81 (0.78, 0.67-0.91; p = 0.001)
- Fall-induced injuries – 75 (0.74, 0.61-0.89; p = 0.002)
- Fractures – 7 (0.77, 0.48-1.23; p = 0.276)
Australian Falls Clinics

- Australia (15 clinics)
  - Mixed funding
    - Core staff most commonly PT, geriatrician, & OT
  - 8 new referrals/month with most referred by GPs
  - Multidisciplinary assessment (130 min); most did in-home assessment; no universally applied instruments
  - Most provided interventions (gait aid/ home hazard modifications, home exercise) + used existing services
UK Falls Clinics

- UK (231 services)
  - Hospital-based; on referral; eligibility based on falls/near falls/fear of falling/FRAT – J Public Health 2004, 26:138-43
  - Multidisciplinary team (full – PT, nurse, OT, MD); 180/ year
  - Multi-factorial assessments (228, 99%) – gait & balance, home hazard assessment, medication review (all three 72%+), cardiovascular (69% - self-report, auscultation, postural vitals), vision (58% - most self-report), bone health (13%)
  - Interventions – education (94%), exercise (clinic 79%, home 45%, referred 21%), home hazard (60%), medication changes (43% usually done directly), incontinence (42%), vision (35%), foot health (29%), bone health (24%), hearing (19%), CV (16%)
  - Limited follow-up; issues with how vision, meds, home hazard, & bone health managed – BMC Health Serv Res 2008, 8: 233
Canadian Falls Prevention Clinics
Models of Falls Prevention Clinics

• Often not clear distinction between approaches
• Stand-alone (Vancouver & Calgary Clinics)
• Integrated within other components of SGS
  – Based in geriatric day hospitals (note: geriatric assessment clinics not discussed; bidirectional flow)
• Mobile clinics
• Non-geriatric specialty clinics (not discussed)
  – Balance & dizziness (e.g., neurovestibular, ENT/otolaryngology, PT vertigo & dizziness centres), syncope (e.g., syncope & autonomic function)
Calgary Fall Prevention Clinic

- Founded 2001; based on RCT/ 5 yr. before & after study - 70%+ decline in falls/ injurious falls
- Aim – prevent falls in high risk older individuals; referral-based (e.g., FP); transdisciplinary team
  - 65+, fallen within the last 12 months, & cognitively able to follow through with recommendations
  - Multifactorial, standardized, evidence-based in-home assessment of client & environment (PTs, OT)
    - Pharmacist (meds) & dietician (nutrition, Ca, vit D) review all
  - Multidisciplinary full team meeting (risks/ Rx plan)
    - Plan shared with client/ referring source/ FP (if differ); interventions – partially clinic/ partially others; f/u 2-4 wks.
Clinical Service

- Staff: 2.35 PTs (includes Clinic Coordinator 0.4), 0.7 OT, SW 0.6, 0.3 pharmacist, 0.3 dietician, 0.2 GM
- Fall-specific interventions offered (+ scope of practice):
  - Client education (all disciplines)
  - MD: assessments (selected based on MD review; ~ 20%)
  - PT: balance training (FallProof™), vestibular assessment & Rx, LSVT BIG (Parkinson disease), walking aids (~ half seen per year, with even split between balance training & vestibular)
  - OT: lower leg vascular assessments, complex home &/or equipment assessments, cognition
  - Pharmacist: review complex regimens, deprescribing
  - SW: fear of falling counselling (position vacant)
Research & Training

• Published & unpublished research/evaluation projects
  – Calgary Fall Prevention Clinic 5 Year Review (Sept. 7, 2006).

• Presentations (regional, national)

• Training site for postgraduate medical + rehab students
  – Proposal - 1-month ambulatory rotation in geriatric medicine residency program focusing on falls, fractures, ambulation (or mobility), and balance (or dizziness) tentatively called the FFAB rotation
Integrated Model #1

• Falls Clinic/ Capital Health Geriatric Day Hospital
  – Persons 65+, 1+ falls or mobility/balance difficulties & able to participate in exercise (2 hr. sessions/ 2x wkly. for 6-8 wks.); ~90% GDH referrals (350+/ yr.)
    • Goal – prevent further falls
  – Staff – nursing, PT, OT, SW, & geriatrician; process:
    • See upon referral from family physician or other HCP
    • Comprehensive assessment including OT home visit
    • Interventions – education/ counseling, modification of risks for falling, medication review, exercise program, equipment prescription, home adaptation suggestions, foot care, links to community resources

– Sources: Dr. Chris MacKnight/
  https://www.cdha.nshealth.ca/geriatric-medicine/geriatric-day-hospital-and-falls-clinic/about-falls-clinic
Integrated Model #2

• Champlain – Falls Assessment and Streamlined Treatment Clinic (C-FAST) – Dr. Shirley Huang/
  – On-site based in geriatric day hospital, OHC campus
  – Objectives – specialized falls prevention (comprehensive assessment + multifactorial intervention); target high risk seniors; and, build local capacity through mobile clinic model (retirement home/ FHT)
  – Referral source – 62% Geriatric Emergency Management teams/ 16% primary care MDs/ 22% mobile clinic
  – On-site assessment – geriatrician/APN/ PT +/- pharmacist
    • Two half-days/wk. (2 patients/half-day); multifactorial assessment based on AGS/BGS guidelines; use community resources; telephone follow-up
  – Mobile clinic – APN/ PT plus case reviewed with geriatrician at later date (+/- in-person assessment)
Mobile Clinic

• Fraser Health Falls Prevention Mobile Clinic - Ashley Kwon, Coordinator, Patient Safety and Injury Prevention, Fraser Health; https://www.fraserhealth.ca/health-info/health-topics/falls-preventions/seniors-resources/falls-risk-assessment/

• Founded in 2007
  – Improve access in rural and remote areas to standardized fall risk assessment (i.e., instruments/tools) and interventions for their prevention
  – Utilize local resources through partnerships with community/municipal services (i.e., space, recruit clients, utilize appropriate exercise programs locally offered)
Structure/ Process

- Fraser Health Authority
- Part-time staff (0.2-0.4 FTE)
- Referrals – HCPs (estimated 75%; esp. FPs) & self
- 25 minute/station x 5 (registration, kinesiologist, pharmacist, physiotherapist, & summary stations; n = 5)
- 1-4 clinics per month; 13/clinic; circuit of communities (1x a year to every 2-3 months); community/ seniors centre or place of worship
- Kinesiologist (falls risk assessment - falls/pain history, postural BP, strength/balance, vision, sensation, reaction time), pharmacist (bone health - calcium & vitamin D & medication review), PT (review fall risks, personalized activity program provided), & summary station (action plan & referrals, provision of summary)
- Written report client & FP
- Implement locally
- Follow-up call (3-4 months)
Outcomes

• CIHR Demonstration Project
  – Prospective cohort study, economic analysis, qualitative focus groups

• Interim results
  – 83% F, avg. age 83, 57% fall last 6 m., 85% mobility aid, 66% moderate to very marked fall risk (n = 416)
  – Uptake/ outcomes – 72% Ca, 61% vit D, 33% exercise, 24% increased activities; 58% better PPA, 60% better TUG, 55% had 1+ fall/12 months (n = 113)

• Pending publication - Can J Aging 2018, Vol. 37, No. 4
Questions/ Comments/ Discussion

• Do falls clinics have a role?
  – Where do they fit in the range of assessment/management services for the prevention of falls? Who should they see?

• What are the key characteristics of an effective & sustainable falls prevention clinic?
  – Should they solely assess & refer or also provide interventions?
Acknowledgements

Special thanks to –

• Cathy Harbidge
• Dr. Chris MacKnight
• Dr. Shirley Huang
• Ashley Kwan
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