Physiotherapy Services in Elderly Home - A Focus on Fall Prevention

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Definition of fall

- Unintentionally coming to rest on a lower level (Agostini et al 2001)
Consequence of fall

- Injuries
- Morbidity and mortality
- Psychological impact
- Discouragement of activity by care providers
- ↑ Government medical expense
- Increase staff time for assessment, observation and reporting
Epidemiology

- Falls are the leading cause of injury-related death for individuals age 65 or above
- The Quick Stats Section of the Canadian Institute of Health Information Web site: falls account for 85% of the injury related admissions to hospital among people over 65 years old
- 25% of fall victims sustain a serious injury from the fall (Eliopoulos, 1997)
- The risk of falling increases exponentially with age
Epidemiology

- The average nursing home residents are older, sicker and more functionally dependent.
- Nursing home residents fall almost daily, ranging up to 50% of residents have fall history (Deanna Grajy Miceli et al 2005).
- A mean of 1.5 falls per bed per year was reported (Phyllis Theodos 2003).
- It was stated that the frail, high-risk residents tend to fall secondary to gait disorders, weakness, dizziness and confusion while the community-based person’s fall is more related to the environment.
Risk Factors Contributes to Fall

- Intrinsic Factors
- Extrinsic factors
- Others
Risk Factors Contributes to Fall

- Risk factor determination is important→match specific intervention with risk factors
- **Intrinsic factor:**
  - Age
  - Visual and hearing impairment
  - Sensory deficit
  - Cognitive impairment
  - Acute and chronic disease
  - Balance deficit
  - Neurologic conditions: stroke, parkinsonism
  - Musculoskeletal condition: weakness, pain, deformity, stiff joint etc
  - Foot disorder
Risk Factors Contributes to fall

- History of previous fall - the strongest predictor of future is a previous fall. [It was claimed that residents with a history of two or more falls in the past 6 months were 84% more likely to fall than those with no recent fall history (Van Door et al 2003)]
- three or four medications a day is associated with an increased risk of fall
- Use of medication especially antihypertensive drugs, psychoactive drugs, antidepressant, diuretics
- Depression (3 times greater) and emotionally unstable
Risk Factors Contributes to fall

Extrinsic factor

- Environmental factor
  - Lighting
  - Wet floor / Polished floor
  - Uneven grounds
  - Obstacles
  - Footwear
  - High beds
  - Loosen rugs…

- Assisted device – incorrect choice, wrong size, lacks instruction to use, does not use the brakes during transfer on a wheelchair…
Risk Factors Contributes to fall

Other factors

1. Relocation – first week of admission, readmission after a hospital stay, changing a resident’s room
2. Staffing - Period with low staffing levels e.g. meal time, shift, new staff
3. Multitask incidents – engaging in other activity at the same time
Intervention

- Detect fall risk residents
- Identify fall risk factors
- Modifying their fall risk factors
- Prevent recurrent fall and fall-related injuries
- Minimize the use of restraint
- Prevent falls while maintaining autonomy and independence and postpone problems resulting from inactivity
Role of physiotherapist-
Identifying resident at risk

- Downton fall index/ Morse fall scale (primary screening by nurse)
- Thorough physical and functional assessment
- Time up and go test
- Functional forward reach
- Tinetti Assessment Tool (19-24 indicate a risk for falls, below 19 indicating a high risk)
- Berg’s Balance Scale (a score below 45 indicate fall risk)
Role of physiotherapist-
Identifying resident at risk

- screen all newly admitted residents
- screen when readmission from a hospital stay
- screen when there is health or functional status changes
- fall risk assessment regularly (at least once a year or after a fall)
Intervention

- Assistance device
- Education (staff and residents)
- Exercises
- Environmental modification
- Hip protector
- Medication modification
- Restraints
- Transfer training

intervention
Multifaceted Intervention

- target the risk factor
  - reduce the number of risk factor
  - individualized
  - use resources available in the Home
  - no standard approach to treatment and prevention
- Multifaceted intervention for those with multiple risk factor and those with high risk
Role of physiotherapist - investigator

Post fall assessment - prevent recurrent fall
- history of fall
  (time/ location/ activity at the time of fall/any associate symptom e.g. weakness, pain, fatigue, dizziness etc at the time of fall)
- vital sign
- physical examination : visual, musculoskeletal and foot assessment, neurological assessment
- environmental issues
- shoe wear
Role of physiotherapist
- investigator

- functional assessment
- any change in medication
- any change in mobility, mood recently
- any change in continence state
- assess the condition of appliances e.g. walking aids, wheelchair
- Other than getting the information from the fall-related incident form, it is necessary to get information from the residents or witness for individual analysis
- It is important to assess the resident within their living environment, not just in the PT gymnasium
Role of physiotherapist
- investigator

- Must be considered as a sentinel event, as they are often a marker for disease
- the window of opportunity for learning the reason for a fall occurs immediately after the fall
- if you don’t find out ‘why’ on the first fall, the resident will fall again, and no effective preventive program is possible
- further analysis of the fall statistics to note the trends and the pattern e.g. peak time, peak month, common place, common reason, injury pattern and severity etc.)
Role of Physiotherapist
- Educator

Education to staff
- clinical practice guidelines/protocol describe the responsibility of different professionals and worker
- orientation to new residents on environment
- require the commitment and participation of the entire staff
- must have a sense of ownership and be provided feedback
- note the changes in behavior and functional status of the residents
- transfer techniques
Role of Physiotherapist
- Educator

Education to residents
  - encourage safe behavior
  - note the place where accident may occur

Education to relatives
  - cooperate in the individual care plan
Example of Content of education given to staff

1. Fall risk factor and consequence of fall
2. Call bell within reach
3. Glasses within reach
4. Check hearing aids in proper function
5. Bed in low position
6. Reposition of bed e.g. against wall
7. Reposition of residents e.g. close to toilets
8. Shoe wear checking
9. Monitor for drugs’ side effect
Example of Content of education given to staff

10. Monitor for pain medication needs
11. Reevaluate bowel and bladder routine, wear diaper pants rather than diaper for those who can handle toileting independently
12. Return to bed after lunch/meal
13. Involve resident in activities to increase supervision
14. Transfer with 2 assistants whenever necessary
15. Increasing rounds to offer help and prevent dangerous action……
Example of Content of education given to resident

1. 環境危機要留神
   
2. 鞋和衣物要稱身
Example of Content of education given to resident

3. 助行器具要稳固

4. 有病睇醫生、有病要休息
Example of Content of education given to resident

5. 藥物影響要留心

6. 量力而為莫強行
Example of Content of education given to resident

7. 慢慢走時更放心

8. 有事求助勿怕煩
Example of Content of education given to resident

9. 運動強身更醒神
Role of physiotherapist
- as a therapist

1. Pain control
2. Exercise program
   - balance, strength program, endurance training
   - individual vs group program
   - Frequency and duration (it is claimed that a training period of not less than 10 weeks will be more promising)
   [The aging musculoskeletal system retains its responsiveness to progressive resistance training]
3. Mobility and gait training
4. Prescription of appropriate walking aids and appliances and proper usage
Role of physiotherapist
- as a therapist

5. post fall discussion with nurse and related profession for each fall incident
   - modify the care plan as necessary

6. Plan for staff to walk, stand, sit to stand training for the resident to ensure the muscle strength is maintained

7. Due to multiple factors (primary cognition), it was believed that the residents would not continue to exercise independently, therefore, it is important to incorporate exercise into daily activities e.g. walk with assistance from the dining room to their chair for meals or toileting, rather than bringing them in their wheelchairs as is typically done
Role of physiotherapist
- as a therapist

8. Give recommendation
   - change the daily routine of the client
   - visual reminder for those with fall risk
   - environment modification
   - transfer skills of the care worker
   - consider to give hip protectors who has poor
     response to the fall prevention measures and has risk-
     taking behavior
   - transitional mobility status e.g. on wheelchair, walk with
     assistance
Role of physiotherapist
- as a therapist

9. Choose appropriate appliance e.g. cushion to prevent forward slip

10. Sometimes it may not possible to select all the right interventions on the first try, it is necessary to keep on trying to improve the care
Role of physiotherapist - as a therapist

Example of Environment Modification
The more frail people are, the more they depend on the environment for support, both before and after falls

- Make sure of enough hand rail
- Installation of monkey pole
- A bedside commode
- Night light
- Bed against a wall
- Removal of loose carpets
- Furniture changes
- Change to a lower bed
- Well-padding floor reduce the trauma of fall - must be installed during construction
Role of physiotherapist
- as a therapist

11. Year review of the transferring technique by staff
12. Monitoring the repair and maintenance of wheelchair and walking aids
Role of Physiotherapist
- as negotiator

1. On restraint reduction
2. Furniture placement
3. Daily routine of the resident
4. Facilities required
5. Involvement of other professionals or staff

*Fall prevention needs multidiscipline input*
Consider successful

- Not fall again within 3 months
- No increase in the number of restrainer use
- The independency and autonomy of the residents are not compromised
- Determine the baseline fall rate, then compare over time, between units, and across institution, e.g. less falls, fewer hospitalization due to fall, less functional lose, less fall related injuries
- Key factor in the success of the program was to ensure that frontline staff members are aware of the changes and plans, otherwise all the effort will be worthless
On going process in our home

- Increase residents education
- Increase staff education
- Educational board as visual reminders
- More frequent review for restrainer use
- A more well organized fall committee
- Education to relatives especially shoe wear and clothing
Example 1
- Madam Chan
- F/85
- dementia, depression, knee pain that impair mobility,
  ↑↑ confusion, frequent fall (11 times from October to December 2002)
- Fall prevention approach
  · find out what cause fall
  · Intervention: Cognitive training e.g. R.O. session 3 times a week
    : everyday PT session → enhance physical function to compensate for the deterioration in cognitive function
Example 1……

: arrange special duty (guardsman)
: doing simple work in the office
: don’t let her sleep for so long in daytime, so that she has a better sleep at night to decrease wandering at night
: visual reminder on her frame
: refer medical officer for drugs adjustment because of increase confusion

Outcome – much decrease in fall incidents, improve mobility and improve cognitive function
Example 2

- Madam Chow
- F/90 on admission, now 93 years old
- Dx: OA knee, mild incontinence, dementia
- move in our Home in 24th August 2003 from other private old age home
- refer to physiotherapist after a fall on 24th August 2006 while walking with Quadripod inside her room
- on assessment: contracture of knee about 25 degree, acute attack of OA knee, transfer need 1 minimal assistant, unstable walking with any walking aids, not knowing her own limit
Example 2……

Intervention
: pain control and exercise program
: train her to use wheelchair and teach her to “walk” when sitting on a wheelchair, teach transfer skill
: seat belt for safer maneuver of wheelchair, she can unbuckle by herself
: remove the leg rest because she forgot to lift up the footplate during transfer and more focus on put on the brakes before transfer
: use diaper for the early stage and regular toilet program
: suggest hip protector and refer to SH OT, but refuse by resident
: ice therapy by PCW daily
: train her up to walk with a walking frame
Example 2.....

Outcome:

- She has a second fall on September 2003 during walking while pushing the wheelchair
  → advise given and train her up to use walking frame and allow to walk independently with frame since December 2003

- She has a third fall on February 2004 because she forgot to use the walking frame
  → advice given and recommend not to unfold the walking frame

- On January 2004, she went out alone to buy tissue paper
  → refer to welfare worker to make sure she has the things for her daily living

- She has no fall history after February 2004, now she can walk with a walking frame independently. She is able walk with a stick but she feel unsafe subjectively, therefore she is allowed to mobilize with the walking frame.
Example 3

- Mr. Cheng
- M/ 85
- Dx: parkinsonism, arthritis, spondylolisthesis
- Mentally sound
- History: move in on 2nd May this year, claim to walk with a stick in the previous home, but with fall history. Priliminary screening by nurse with fall risk and consult physiotherapist for advice and temporarily on wheelchair
Example 3……

- Assessment done by physiotherapist, c/o of bilateral knee pain and back pain
- Unstable gait with a stick
- Environment: cannot get up from a wooden bed and the bed is too high for him
- Intervention
  - a rollator was issued for mobility inside room and then gradually progress his walking tolerance
  - pain control for knee and back
  - strengthening program (3 times per week) and walking program every day
  - change to a hospital bed which can adjust to a lower height, a monkey pole was issued for getting up from the bed
  - after about 2 weeks, he is allowed to walk independently on his floor of living, but not allowed to use the lift alone
Example 3......

- however, Mr Cheng fell on early June 2006 and claimed because of slippery floor and weakness on the fall report
- post fall investigation was done by the physiotherapist and found that he walk to toilet with his stick instead of the rollator and the PCW forgot to give him a urinal for night and early morning use
- further recommendation given: ask relative to take away his stick, make sure urinal was given, shoe wear was checked and was in good condition
- there was no further fall incidence and therapeutic program was still going on
Example 4

- Ask the resident to walk near the rail and teach them how to fall
- Mr. Chow with unstable gait, insist to walk, refuse strongly to use wheelchair (he had 20+ fall in one year and all of them had not resulted in any injury)
The End