Fall Risk and Prevention in the Elderly

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Philosophy/Strategy for Fall Prevention

- Efforts should be made to prevent Falls in older individuals.
- All Falls are not preventable.
- Older patients will fall despite adequate prevention.
- Evaluate Risk of Falling and Restraint Use versus Allowing Autonomy of the Patient.
- Ease Case of a Fall is different.
Epidemiology of Falls

- Increased risk with advanced age
- Increased risk of injury with Falls with aging
- Higher in Hospital and Nursing Home setting due to increased frequency of risk factors (delirium; dementia; medications; other co morbid states)
Epidemiology of Falls

- 1/3 of community elderly fall each year
- Hospital and nursing home elderly fall twice as often
- 333,000 hospitalizations for hip fracture in the year 2000 in the elderly aged 65 and older
- 90% of hip fractures occur secondary to a fall
- Falls are the major cause of accidental death in persons aged 65 of age and older
Internal Risk Factors For Falls

- Decreased vision
- Decreased hearing
- Vestibular dysfunction (inner ear)
- Proprioceptive (loss of sensation of feet)
- Neurological
  - Dementia/Alzheimer’s disease
  - Stroke
  - Parkinson’s disease
Internal Risk Factors-

- Depression
- Arthritis-spine; knees; hips
- Podiatric-bunions and calluses
- Postural hypotension; dizziness
- Medications (especially high doses)
  - Long-acting benzodiazepines
    - Diazepam-Valium
    - Chlordiazepoxide-Librium
    - Flurazepam-Dalmane
Internal Risk Factors -

- Medications (especially high doses)
  - SSRIs
  - Narcotics
  - Diuretics-Lasix, hctz, ...
  - Major tranquilizers-
  - Barbiturates-phenobarbital
  - Tricyclic antidepressants-amitryptyline (Elavil); imipramine
Internal Risk Factors

- Previous Fall-related to anxiety and reduced mobility for fear of additional Fall

- Dysmobility (reduced mobility)
Internal Risk Factors for Falls

- Dehydration
- Cardiac problems—irregular heart rate, CHF, heart valve blockage
- Inner ear problems
- Arthritis of knees, hips, ankles or spine
- Poor vision
- Lack of regular exercise, muscle atrophy
External Factors that Increase Risk of Falls

- throw rugs-carpet
- poor lighting-adequate lighting
- slippery floors-rubber mats
- shoe wear without rubbery sole for proper gripping to floor-tennis shoes or wide sole
- lack of grab bars in hallway or bathroom-grab bars
- low toilet seats-high toilet seats
- assistive devices-walkers-evaluate risk/benefit
Evaluating the Risk of Falling/Safety versus Autonomy

- The Psychological Consequences - fear
- The Mental Consequences - depression or anxiety
- The Physical Consequences - fracture or injury
- Above all, Promote emotional, mental and physical independence and dignity for the patient
- Communication with patient/Family about Risk of Falling and promoting Autonomy
Complications of reduced mobility/Prolonged Bed rest

- Lower extremity disuse and atrophy
- Instability leading to Falls/injury/fracture
- Poor balance
- Volume contraction and dehydration
- Postural hypotension and dizziness/syncope
- Even progression of contractures
Complications of Reduced Mobility/Prolonged Bed rest

- Social isolation
- Depression
- Pressure ulcers
- Infections
- Functional decline
Intended Purposes of a Restraint

- **Physical-**
  - to control abnormal behaviors in a demented or confused patient such as agitation; hostility; combativeness; or aggression;
    - for patient safety
    - to prevent injury to self or others
  - for patients with impaired mobility
    - For patient safety
    - To prevent injury to self or others

- **Chemical-**
  - to control or prevent abnormal behaviors in a demented or confused patient such as agitation; hostility; combativeness; or aggression;
  - for patient safety
  - to prevent injury to self or others
Types of Restraints

- **Chemical-**
  - Major tranquilizers
  - Minor tranquilizers
  - Hypnotic/Sedative
  - Neuroleptic

- **Physical**
  - Wrist and foot
  - Posey
  - Lap belts
  - Lap trays

- **Enablers**
Benefits of Physical Restraints

- Immediate impact on patient behavior
- Simple application without formal training
- Accessibility
- Administrative approval
- Prevention of Falls that might result in injury
- Allowing medical treatment to proceed without patient interference
- Protection of other patients or staff from disturbances or physical harm
- Increased feeling of patient safety and security
- Aid in maintenance of body alignment
“Reasons” cited for use of a “Restraint”

- Insufficient staff-in the hospital or nursing home
- Staff attitudes-in the hospital or nursing home
- Administrative pressure to avoid possible litigation
- Social values
Benefits of Chemical Restraint Use

- Onset of action within 15-30 minutes
- Accessibility
- Administrative approval
- Allowing medical treatment to proceed without patient interference
- Protection of other patients or staff from disturbances or harm
Risks Associated with Physical Restraint Use

- Accidental death by strangulation
- Functional decline
- Skin abrasions and breakdown (pressure ulcers)
- Medical and physical consequences of prolonged immobility
  - Osteoporosis
  - Contractures
  - Orthostatic hypotension - low blood pressure
  - Swelling and edema of lower extremities
  - DVT
  - Constipation
Risks Associated with Physical Restraint Use

- Psychological consequences of prolonged immobility
  - emotional isolation
  - causing or worsening of confusion or abnormal behaviors
  - depressive symptoms

- Other consequences of prolonged immobility
  - infringement on the patient’s personal liberty and dignity
  - Increased mortality
  - Nerve damage and impaired circulation
Risks Associated with Chemical Restraint Use

- Medication induced involuntary movements-tardive dyskinesia
- Postural hypotension
- Injury from Falls
- Functional decline
- Medical and physical consequences of prolonged immobility
Risks Associated with Chemical Restraint Use

- Psychological consequences of prolonged immobility
  - causing or worsening of confusion or abnormal behaviors

- Other consequences
  - Infringement on personal liberty and dignity
WOULD YOU BELIEVE FACTS ABOUT RESTRAINT USE

- More restrained than unrestrained patients die.
- More restrained than unrestrained patients have infections.
- More restrained than unrestrained patients get pressure ulcers.
- More often than not, patients are restrained for nonspecific reasons in the hospital and nursing home settings.
WOULD YOU BELIEVE FACTS ABOUT RESTRAINT USE

- There are 200 restraint associated deaths in the US yearly.
- More Louisiana LTC residents are restrained on a daily basis as compared to national average.
Restraint

- The device restricts freedom of movement or normal access to one’s body.
Restraint

- Posey vest
- Wrist or Ankle restraints
- Bedrails
- Self-releasing lap belt
- Abdominal binder
- Lap tray
- Lap belt
- Geri Chair!
Enabler

- The device does not restrict freedom of movement or normal access to one’s body.
Enablers

- Bed alarm
- Chair alarm
- Bed rails (half)
- Door alarm
- Wedge cushion
- Lap belt or tray-self releasing
Alternatives to Reduce Hospital Restraint Use

- For acutely confused patients, search for the cause of the acute confusion (usually a medical illness or drug reaction) in the hospital setting.
- Psycho-social interventions to support the patient in the meantime to reduce the level and length of confusion-family or volunteers, familiar faces.
Use of Least Restrictive Restraints In the Nursing Home When Necessary and Eliminate When Possible

- Bed or chair alarms for demented patient
- Door or facility alarms for wanderers
Federal Regulations in the Nursing Home Relative to Restraint Use

- The resident has the right to be free from any physical or chemical restraints imposed for purposes of discipline or convenience, and not required to treat the resident’s symptoms. (CFR483.13(a))

- Residents’ drug regimens must be free from unnecessary drugs. These are defined as “...any drug when used in excessive dose (including duplicate therapy); or for excessive duration; or without adequate monitoring; or without adequate indications for its use; or in the presence of adverse consequences which indicate the dose should be reduced or discontinued; or any combinations of the reasons above”. CFR483.25(1)(1)
The Osteoporosis Continuum

50 Menopausal
Experiencing vasomotor symptoms

55+ Postmenopausal
At greater risk for vertebral fracture than any other type of fracture

75+ Kyphotic
At risk for hip fracture and vertebral fracture
Brittle bones plus a fall-fracture

Increased frequency of bone loss with normal aging that might lead to osteoporosis
Burden of Disease

10 million people in US have Osteoporosis

33 million people in US have Osteopenia.
Burden of Disease

> 2 million fractures/year due to either.

- 300,000 HIP fractures.
- 547,000 vertebral fractures.
- 135,000 pelvic fractures.
Burden of Disease:

Hip fractures:

50% Permanent impaired mobility.

25% Loose skills to live independently.

Increased all cause mortality: first 3 months after hip fracture.

OP accelerated with

1) lack of exercise
2) drinking
3) smoking
4) Medications
5) lack of calcium and vitamin D intake
6) kidney failure
7) hysterectomy
8) lack of hormone use
The Interdisciplinary Care Plan in the LTC Setting for Falls and to Prevent Fractures (when possible)

- Team Members-Rehab (PT, OT, ST); dietary; nursing; medical; activities; social service; pharmacy

- Patients at high Fall Risk should have a Care Plan developed for Fall Risk Prevention Strategies if they are deemed to be at high risk of Falls (see Fall Risk Tool as an example)
FALL RISK ASSESSMENT

Score | Dates of Assessment
--- | ---
1 | Age over 70
5 | Pediatric patients 12 or under
5 | Falls prior to admit

**General Data**

1 | Impaired memory and judgement
5 | Impulsivity
5 | Agitation/Restlessness
1 | Lack of familiarity with surroundings

**Mental Status**

1 | Dizziness/balance problems
1 | Joint difficulties
1 | Fatigability
1 | Paresis/paralysis
3 | Amputation w/o Prosthesis
2 | Amputation with Prosthesis
1 | Seizure disorder
5 | Head injury/CVA
1 | Sight/Hearing Impaired (hearing aid)
1 | Incontinence
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<td><strong>Transfer Proficiency:</strong></td>
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<td>Max assist</td>
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<td>Cast/splints</td>
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<td>Laxatives/cathartics</td>
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<td><strong>TOTAL</strong></td>
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<td>8-14</td>
<td>Moderate risk</td>
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<td>15+</td>
<td>High risk</td>
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Fall Risk in the Nursing Home

- Appropriate Care Planning
  - Fall Risk Evaluation on admission
  - Care Plan for Falls in those at risk on admission and updated regularly
    - Low bed
    - Mattress on the floor
    - One side of bed next to the wall when possible
    - Bed close to nursing station when possible
Adequate Care Plan for Falls Prevention

- Adequate lighting
- Hand rails (Half for promoting mobility)
- Q 2 hour toileting and before bedtime for demented or confused patients to prevent patient from ambulating inappropriately without assistance and slipping and falling on way to BR when applicable to the particular patient
- Provision of assistance when toileting to the extent possible
- PT and OT when appropriate
- Limit diuretic during evening hours when possible
Interventions to Prevent Falls

- Reduction of polypharmacy (medications, especially high risk ones)
- Range of motion and regular exercise-walking 20-30 minutes three times per week
- Appropriate vision wear and hearing
- PT and OT
- Treatment of chronic disease
- Adequate Vitamin D supplementation can reduce risk by 20%.
- Reduction in restraint use when possible
Care Plan Interventions To Prevent Falls

- Adequate calcium (carbonate or citrate) at a minimum of 1200 mg per day
- Pharmacological therapy:
  - Bisphosphonates
  - Calcitonin
  - Raloxifene
  - PTH
  - Denosumab
- Adequate Vitamin D supplementation can reduce risk of fall by 20% (D2-daily or D3)
Summary - Evaluating Fall Risk/Restraint Use versus Allowing Autonomy for the patient

- A Clinical decision, not a right or wrong decision
- Evaluate Risk Benefit of falling versus being restrained
- Inform the 0patient/caregiver of the risks and benefits of being restrained
- Document in the chart