Assessment of falls

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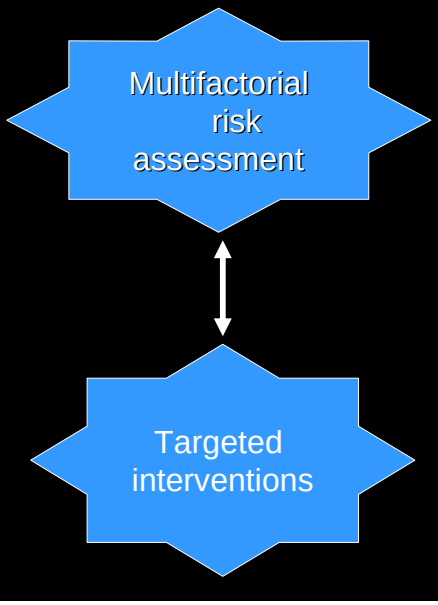
What assessment for ?

- Falls are one of the most common geriatric syndromes.
- Between 30 and 40 percent of adults over 65 years fall each year.
- Falls are associated with increased morbidity, mortality and nursing home placement.
- Approximately 1 up to 10 falls results in serious injury such as hip fracture or head injury.
- Recovery from falls is often complicated by poor quality of life , functional decline, fear of falling and social isolation.

Why assessing ?

- Most falls result from complex interplay of predisposing and precipitating factors in a person's environment.
- Identification of risk factors and targeted intervention is an effective method of preventing falls in elderly living in community.



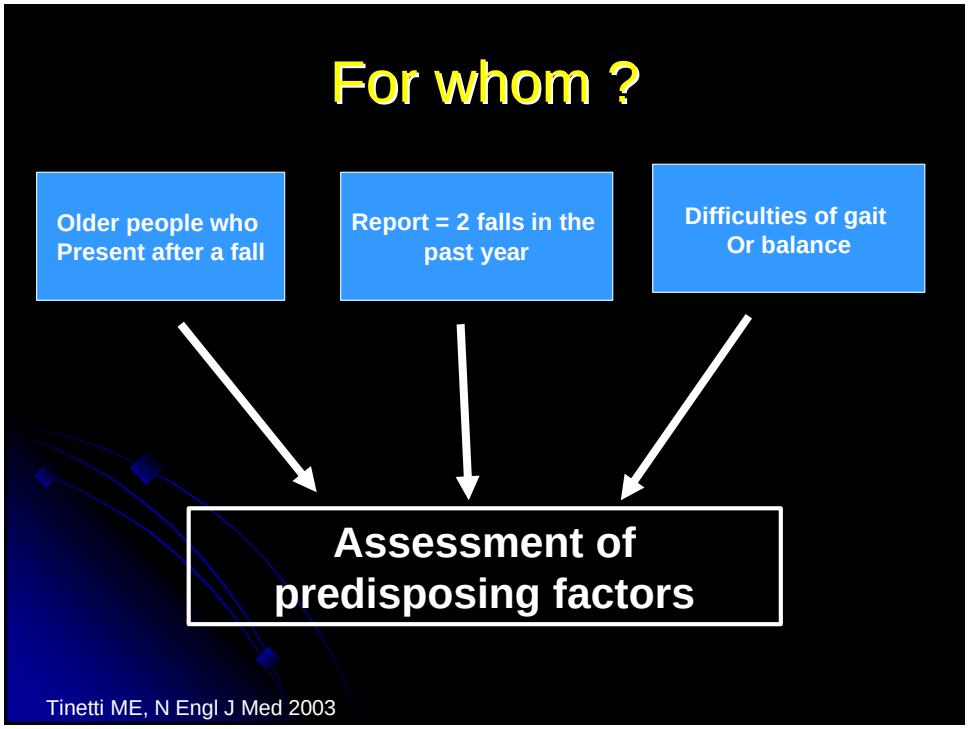
Falls prevention : whom for ?

- Physicians caring for older patients :
  - Every year
  - Ask about falls
  - Ask about gait and balance difficulties
  - Observe the patients walking
  - Use of screening tools

- All elderly patients :
  - = 75 ans,
  - = 70 ans with risk factors of falling

Guideline for the prevention of falls in older persons. American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons : J Am Geriatr Soc. 2001

For whom ?



Tinetti ME, N Engl J Med 2003

Most common factors for falls

- Risk factors :

- Muscle weakness
- History of falls
- Gait or balance deficits
- Fear of falling
- Use of assistive device
- Visual deficits
- Impaired ADL
- Cognitive impairment

- Population at high risk

- Hospitalized
- Nursing home

- Diagnoses :

- Arthritis
- Depression
- Dementia
- Parkinson disease

- Drugs :

- = 4 medications
- Psychotropic medications
- 1a antiarrhythmic medications

- Environmental hazards

Rubenstein LZ and al. Ann Intern Med. 1994. Review.
Cesari M and al. J Gerontol A Biol Sci Med Sci. 2002

Fall assessment - Medical history

- **Circumstances of the fall** : ask about environmental hazard, posture change, recent meal, how long on the ground
- **Associated symptoms** : chest pain, palpitations, confusion, dyspnea, incontinence,loss of consciousness
- **Acute medical problem ?**
- **Relevant comorbid conditions**: previous stroke, cardiac disease, seizure disorder, parkinsonism, diabete
- **Mobility level, functional and cognitive status**
- **Medication review :** type of drug, dosage of drug, need of drug

Fall assessment- Physical examination

- **Any immediate injuries caused by fall ?**

- **Vital signs** : Identify postural blood pressure changes.
- Fever or any acute medical problem.
- **Visual impairment :** perform the acuity.
- **Heart** :Identify arrhythmia or valve dysfunction.
- **Neurologic signs** : focal deficit, rigidity or tremor, confusion, peripheral neuropathy.
- **Musculoskeletal signs** : arthritic changes, pain junction, motion limitations, foot problems.

Fall assessment- Physical examination

- **Functional assessment** :
  - Functional gait and balance using the **« Get up and Go » test**
    - = observe the patient getting up from a chair without using arms, walking 3 m, turning and walking back to the chair and sitting down.
    - = Timing the process
      - >16 : freely mobile
      - >20 : mostly independent
      - 20 to 29 : variable mobility
      - >30 :impaired mobility
  - Fear of falling ?

Assessment - Physical examination

- Several tests have been developed for assessing mobility in older people :
  - Sit to stand test with one or five repetitions (STS-1 or STS-5)
  - Pick-up-weight test
  - TURN180 test (number of steps)
  - Tandem walk
  - Berg stool-stepping task
  - Alternate-step test
  - Six-metre-walk test (SMWT) or ten-metre-walk test (TMWT)
  - Stair ascent and descent
  - Tinetti Mobility scale (14 tasks)
  - Performance-Oriented Mobility Assessment (POMA)
  - Elderly Fall screening test (EFST)
  - Modified Gait Abnormality Rating Scale (GARS-M)

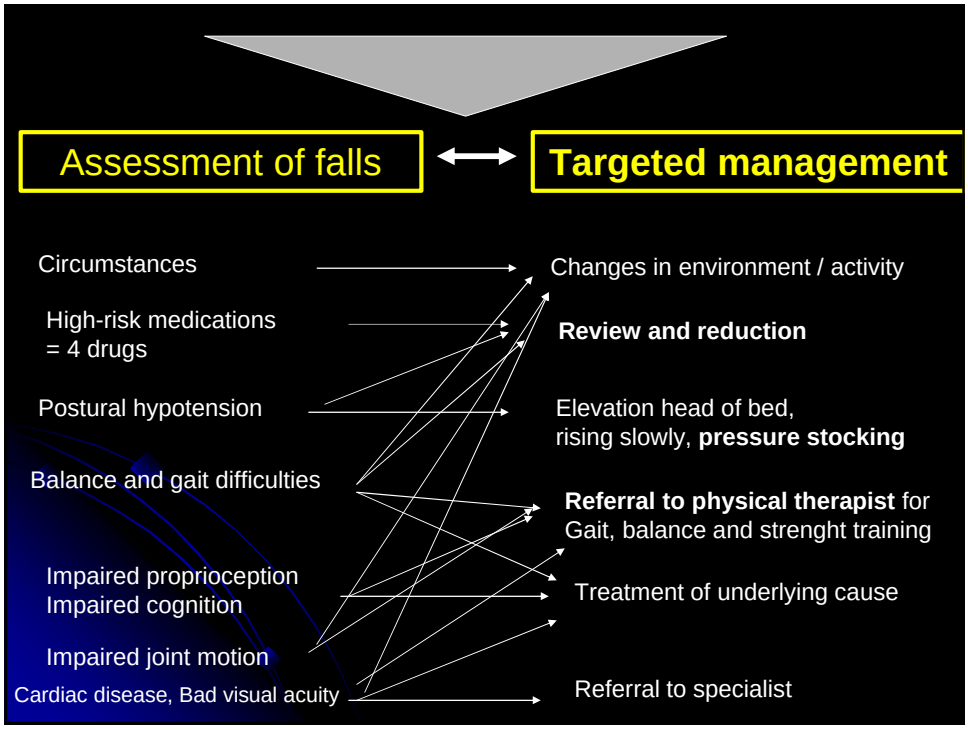
Medication use

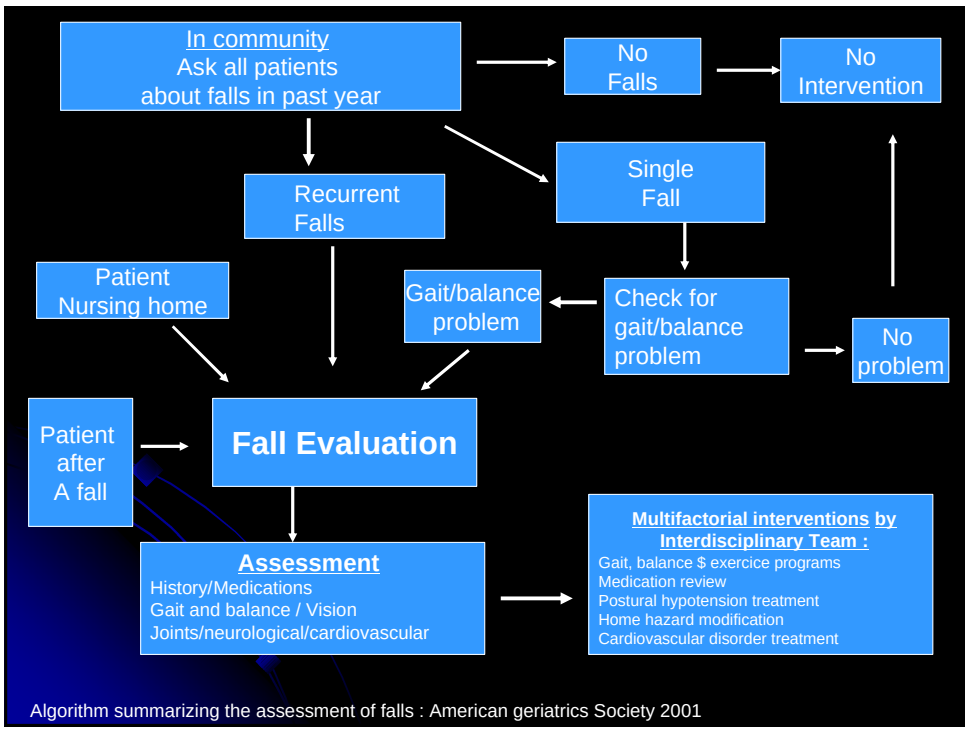
Psychotropic drugs	OR	Cardiac drugs and analgesic drugs	OR
Psychotropic	1,73 (1,52-1,97)	Ia antiarrhythmics	1,59 (1,02-2,48)
Antidepressant	1,66 (1,41-1,95)	Digoxin	1,22 (1,05-1,42)
Neuroleptic	1,50 (1,25-1,79)	ACE-inhibitors	1,20(0,92-1,58)
Sedative/hypnotic	1,54 (1,40-1,70)	Diuretic	1,08 (1,02-1,16)
benzodiazepine	1,48 (1,23-1,77)	B-Blockers	0,93(0,77-1,11)
Antidepressant TCA	1,51(1,14-2,00)	Narcotic	0,97 (0,78-1,20)
		NSAID	1,16 (0,80-1,57)

Two systematic reviews of Leipzig et al 1999, JAGS

Environmental hazards

- Involved in 30-50% of falls in most studies.
- Hazards at home :
  - Bad lighting
  - Slippery floors, loose rugs
  - Unsatisfactory footwears
  - Steep stairs, lack of grap rails
  - Telephone cords (electric wires)


Assessment of falls
Targeted management
Circumstances
High-risk medications
= 4 drugs
Postural hypotension
Balance and gait difficulties
Impaired proprioception
Impaired cognition
Impaired joint motion
Cardiac disease, Bad visual acuity
Changes in environment / activity
Review and reduction
Elevation head of bed,
rising slowly, pressure stocking
Referral to physical therapist for
Gait, balance and strenght training
Treatment of underlying cause
Referral to specialist


In community
Ask all patients
about falls in past year
No
Falls
No
Intervention
Recurrent
Falls
Single
Fall
Patient
Nursing home
Gait/balance
problem
Check for
gait/balance
problem
No
problem
Patient
after
A fall
Fall Evaluation
Assessment
History/Medications
Gait and balance / Vision
Joints/neurological/cardiovascular
Multifactorial interventions by
Interdisciplinary Team :
Gait, balance $ exercice programs
Medication review
Postural hypotension treatment
Home hazard modification
Cardiovascular disorder treatment
Algorithm summarizing the assessment of falls : American geriatrics Society 2001

Home take message

You should wonder:

« Did I ask about falls and gait and balance difficulties to the last old patient I show ? »