Gait abnormalities in the elderly
A practical approach
Where PCP’s fall down on the job

Joseph H. Friedman, MD
Director, Movement Disorders Program
Butler Hospital
Dept of Neurology
Alpert Medical School of Brown University
Conflicts

- None relevant
“The exam begins in the waiting room”

Laura Marsh, MD
87 YO woman with isolated gait complaint

152044

4/28/12

7/2/14
Objectives

To convince everyone that:

- Falls are very bad, especially in the elderly
- Doctors often don’t evaluate gait but should
- To describe what you see.
CDC 2013

- 1/3 older than 65 fall/year; less than half discuss it with PCP
- 2.5M older patients seen in ER in 2012 for falls
- Direct cost of falls in 2012 was $34B
20-30% of fallers suffer moderate to severe injuries
50% of fallers fall again within a year
Fall death rate 34% higher in men
Fall death rate (>65) increasing each year, 58/100,000 in 2013
Fits, faints and falls

- Concussion may induce amnesia
- Fits are more likely to cause injury
- Falls are most likely dx of FOF if the person has an abnormal gait
- Evaluate gait and orthostatic BP
GAIT ABNORMALITIES

- What is a gait abnormality?
- What are the implications?
- What is a “fall”?
JHF informal survey

- 1 of 20 PCP’s evaluated gait as part of routine exam in patients over age 65.

- Non-evidence based belief: observation is more likely to pick up a significant gait abnormality than auscultation is to detect a significant new heart murmur in older people.
How to reduce fall risk

- Exercise
- Walk with neighbors
- Safety
- Use devices
- Vitamin D
- Pacemaker
- Treat hypotension???
88 YO woman with “tremor”
GAIT ABNORMALITIES

- Rule #1: If you don’t look you won’t see.

- Rule #2: Inquire
  - a. Is there a gait or balance problem?
  - b. What is the etiology?

- Rule #3: Any assistive device requires a justification.
GAIT ABNORMALITIES

What goes into walking?

- Standing up.
- Maintaining balance.
- Moving the feet.
Parameters of gait

- Standing up
- Posture
- Base
- Stride
- Footstrike

- Speed
- Balance
- Turning
- Armswing
Normal

- Posture
- Stride
- Armswing
- Base
- Turn
- footstrike
Peripheral origin gait disorders

- Musculoskeletal joints, bones, muscles, tendons, et

Sensory

  proprioceptive, vestibular, visual, tactile

Motor

  weakness, proximal vs distal
Central

- Spinal
- Pyramidal
- Cerebellar
- Extrapyramidal
- Psychogenic (eg fear)
- Other
<table>
<thead>
<tr>
<th>Abnormal gait etiologies</th>
<th>Young</th>
<th>Old</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drugs</td>
<td></td>
<td>Parkinsonism</td>
</tr>
<tr>
<td>TBI/SCI</td>
<td></td>
<td>Cerebrovascular</td>
</tr>
<tr>
<td>Orthopedic</td>
<td></td>
<td>Orthopedic</td>
</tr>
<tr>
<td>MS</td>
<td></td>
<td>Spinal cord</td>
</tr>
<tr>
<td>Brain tumor</td>
<td></td>
<td>Neuropathy</td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td>Myopathy</td>
</tr>
<tr>
<td>Muscular dystrophy</td>
<td></td>
<td>Drugs</td>
</tr>
<tr>
<td>Neuropathy</td>
<td></td>
<td>Vestibular</td>
</tr>
<tr>
<td>Psychogenic</td>
<td></td>
<td>psychogenic</td>
</tr>
</tbody>
</table>
Episodic gait disorders

- Orthostatic hypotension
- Psychogenic
- Drop attacks
- Freezing of gait
- festination
Hemiparetic
Parkinsonism unilat
Parkinsonism/freezing
87 yo, DaT-; vascular park
PD > 1 year, treated with CPZ
What to do after diagnosis?

- 1. correct/treat if possible
- 2. prevent progression
- 3. Physical Therapy
- 4. Safety interventions
- 5. Encourage exercise ("use it or lose it"; "rest and rust")
Inherited disorder
Spastic gait
Dystonia
Freezing
Inherited (b)
Sensory ataxic gait

14 - 21

Sensory ataxia

T. pin, touch, proprioception

6/25/07
83 r.i.o.
PMD before treatment
PMD resolved