Evidence in Action

"It Started With a Fall" Part 2 – Evaluation and Intervention

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(From Part 1 in March 2015 *ACA News*, Page 28: Your patient is 69 years old, 5'4", 120 lbs. and has a slight limp. She uses a cane. Past history includes high blood pressure, diabetes and insomnia, for which she has concurrent medical management. Arthritis has caused her to have a left hip replacement. She is considering having the right one done, as well. Medication helps her deal with hip pain. She is sedentary and fairly homebound. She lives alone, rarely cooks and often eats TV dinners. She is lactose intolerant and takes medication for gastroesophageal reflux disease. Her present illness, she says, started with a fall.)

YOU MAY HAVE HAD A PATIENT just like this one. In this series, I am attempting to answer three questions to plan out my course of care.

1. Which of my patients are at risk for a fall?
2. How do I evaluate them?
3. Which interventions are effective?

In Part 1, I discussed the extent of this public health problem, reviewed my search strategies and discussed common risk factors associated with falls.[1,2] In Part 2, I discuss the evaluation of an individual's risk of falling and some of the interventions known to be effective in reducing that risk.

The standard history and physical examination can aid in identifying medical conditions that increase risk. If suspected, cognitive deficit can be evaluated using the Mini Mental State Examination (MMSE). This is a 30-question test used for more than 35 years and has been well-studied.[3] A short "Six-Item Cognitive Impairment Test" compares well with the MMSE and appears to have value as an in-office screening tool.[4] You first ask the patient what year and month it is. Then, you give the patient a name and address to remember containing five components (e.g., first name, last name, street number, street name and town).

Next, you ask your patient to:

- state the approximate time
- count backward from 20
- say the months in reverse, and
- repeat back the address.

The test can be done in less than five minutes using a scoring algorithm. A score of eight or greater warrants further evaluation.

With the timed up-and-go (TUG) test,[5] you ask the patient to start from a seated position, get up and walk 10 feet at normal pace, turn around, return, and sit down. Less than 12 seconds is considered within normal limits.

Several tests assess balance. The Tinetti balance test and the Berg Balance Scale use a series of graded balance assessments in different postures and with different activities (e.g., standing, turning, nudged, eyes closed, etc.). These tests have been validated but might take 15 or 20 minutes. That's more time than most clinicians have for this assessment. The Centers for Disease Control and Prevention (CDC) advocates a 4-stage, 1-minute balance test with its STEADI (Stopping Elderly Accidents, Deaths and Injuries) program.[6] The patient stands for 10 seconds each with:

- feet together, then
- 1 foot slightly in front of the other, then
- 1 foot in front of the other, then
- 1 foot raised off the floor.

Leg strength should also be assessed with the Chair-Stand test, in

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which the patient stands from a sitting position as many times as possible within 30 seconds.

The CDC's STEADI program provides a number of tools, including a useful checklist for assessing patient fall risk.[6] Interventions to reduce fall risk have been studied in a variety of settings, including hospitals, nursing homes, and in the general community, as well as in different patient populations. Since the majority of chiropractic patients are community dwellers, that will be my focus.[7,8]

A 2012 Cochrane Review indicated that exercise can decrease fall rates.[7] The ones with best outcomes include multi-component group exercise, multi-component home exercise and tai chi. Multi-component exercise addresses aerobic fitness plus strength, flexibility and balance.

Multifactorial interventions that include risk assessment, targeted interventions, exercise, education and environment modification are shown to be effective.[7]

Home assessment and modification are beneficial. Education alone does not appear helpful. Vitamin D does not affect fall rates in general but may benefit those with hypertension by lowering blood pressure. Beneficial podiatric interventions include footwear assessment and modification.[7]

Gradual reduction in psychotropic medications and prescription modification for patients on more than four medications reduces the fall rate. Although treatment of visual problems can be beneficial, some interventions actually increase the fall rate. Use of multifocal lenses (bifocals or progressive lens) seems to increase the fall rate due to less edge-contrast sensitivity and mildly impaired depth perception.[7]

Patient Care Factors

The Todd and Skelton WHO evidence report divides risk factors into intrinsic and extrinsic.[1] Borrowing from their classification, my clinical approach addresses three elements:

1. Reduce Modifiable Intrinsic Risk Factors
2. Reduce Modifiable Extrinsic Risk Factors
3. Improve Functional Capacity

This approach requires an integrated multidisciplinary approach, including this patient's risk factors:

- History of falls
- Uses cane gait disturbance
- Pain
- Four or more medications
- Potential vitamin D deficiency
- Older, female
- Sedentary potentially deconditioned

My patient's modifiable risk factors include her gait disturbance, pain, medication use and potential dietary deficiency. A chiropractor can deal directly with the pain, gait disturbance and potential dietary deficiency. If an orthopedic surgical consultation is warranted, that can be obtained. The patient's medical provider can review her medications. Visual problems can be addressed by a vision professional. A podiatric physician can be consulted for foot problems beyond those usually cared for by a chiropractor.

Extrinsic factors might include home modification, removing tripping risks and ensuring appropriate lighting. Footwear may need to be examined and modified. A favorite pair of slippers may pose a tripping or slipping risk.

Improving functional capacity involves exercise programs that increase strength, improve balance and improve aerobic capacity. Tai chi is beneficial. Exercise has the potential not only to improve strength and balance but also to increase confidence and reduce the fear of falling.

Fall prevention is complex and multifactorial. Maintaining an awareness of the risk factors and spending some time with patients at risk could save them much pain and suffering. Excellent tools are available. I strongly recommend checking out the CDC's STEADI program.[6] ■

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