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## My older patient with cancer reports falls: What should I do?

Andrea Ungar\*, Martina Rafanelli

Division of Geriatric Cardiology and Medicine, University of Florence and Azienda Ospedaliero-Universitaria Careggi, Florence, Italy

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### ABSTRACT

Falling is one of the major geriatric syndromes, with a multi-factorial pathogenesis due to age-related changes, pathological conditions and environmental hazards. Such a multi-factorial syndrome needs a standardized approach aimed at identifying risk factors. A comprehensive loco-motor, gait and standing balance, cardiovascular and neurological assessment, as well as a drugs regimens review, should be part of the routinely approach. Modification of environmental hazards, exercise training, behavioral and pharmacological treatment of specific diseases which can be the leading cause of falls, should all be part of an individualized intervention. Particular attention should be paid in the evaluation of unexplained falls, which can mask hypotensive or arrhythmic syncope.

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### 1. Introduction

Falling is one of the major geriatric syndromes affecting mortality, morbidity and institutionalization.<sup>1</sup> Thirty-four percent

of community dwelling patients older than 65 years old and 50% of octogenarians fall at least once a year. Incidence rates for falls in nursing homes and hospitals are two to three times greater than in the community and complication rates are

\* Corresponding author at: Syncope Unit, Division of Geriatric Cardiology and Medicine, University of Florence and Azienda Ospedaliero-Universitaria Careggi, Viale Pieraccini 6, 50139 Florence, Italy. Tel.: +39 055 4271467; fax: +39 055 4271469.

E-mail address: [aungar@unifi.it](mailto:aungar@unifi.it) (A. Ungar).

also considerably higher.<sup>2</sup> Ten percent of the admissions to the Emergency Department (ED) and 6% of urgent hospitalizations are due to fall-related injuries<sup>3</sup>; 5–10% of older patients experience fractures and concussions<sup>4</sup> and in about 1% of the cases a hip fracture occurs, with a 20 to 30% one-year mortality and loss of functional capacity.<sup>5</sup> The consequences of falling or not being able to get up after a fall can include, besides physical injuries, psychological problems, as fear of falling and loss of confidence in being able to move safely, leading to social isolation and depression, increase in dependency and disability, loss of mobility, hypothermia, pressure-related injury and infection.

Cancer is a disease of aging too. Considering the growing incidence of cancer in older adults who may be at greater risk for falls and the aging process of the population, attention to falls becomes mandatory to meet the clinical needs of this growing population.

## 2. Pathogenesis and Risk Factors

The pathogenesis of falls is multi-factorial due to age-related changes, pathological conditions, and environmental hazards (Table 1, 6).

Ambulatory problems and muscle weakness are responsible for 10–25% of the falls.<sup>7</sup> The type of injury sustained is determined by the way of falling: wrist fractures usually result from forward or backward falls onto an outstretched hand and hip fractures typically from falls to the side, whereas backward falls directly onto the buttocks have much lower rates of associated fractures.<sup>8</sup> Although the reduction of muscle strength is part of the physiological aging process, much of this is probably attributable to co-morbidity and physical inactivity. Falls are indeed the result of the interaction between increased individual susceptibility, high risk activities and environmental hazards, as carpets, thresholds, stairs, slippery surfaces, inadequate lighting or, on the contrary, excessive or dazzling illumination which contribute to the fall's dynamic in 30–50% of the cases.<sup>9</sup> Frequently a fall happens in the domestic environment, because older patients are prone to spend most of

their time at home, feeling unsafe and less confident outside on their own, and on the contrary feeling more confident in the well-known domestic space. Inpatients or older adults in nursing homes are more prone to fall getting out of bed, getting into or out of the bath, or during postural changes.<sup>10</sup> Restraints on older inpatients can worsen the risk of falling, increasing the level of mental confusion or psychomotor agitation. The risk of falling is four times higher after discharge from the hospital or in the sub-acute phase of an illness because bed rest, wheel-chair restriction or immobilization reduces muscles strength and predisposes to orthostatic de-conditioning.<sup>11</sup>

A recent systematic review suggests that falls in older adults with cancer may be more common than among community-dwelling older adults without. Especially cancer symptoms and treatment factors were examined.<sup>12</sup> Daily pain was associated with a 44% greater odds of falls [OR 1.44 (95% CI 1.32–1.59)] in one study<sup>13</sup> and an 87% greater odd of falls in another [OR 1.87 (95% CI 1.03–3.4)].<sup>14</sup> Cancer treatment, with increasing numbers of cycles of neurotoxic chemotherapy, accelerates frailty more than increasing age, such that chronological age is no longer an important predictor of falls in an oncology population. Nearly one in five older adults with cancer will develop a new risk factor for falls subsequent to starting chemotherapy.<sup>12</sup> Moreover, certain chemotherapeutic agents<sup>15</sup> and advanced cancer stage<sup>16</sup> represent unique falls' risk factors for patients with cancer.

## 3. Assessment of Older Patients with Falls

Such a multi-factorial syndrome, needs a comprehensive and standardized approach (Fig. 1), as suggested by the National Institute for Health and Care Excellence (NICE).<sup>17</sup> The latest update of the NICE guidelines<sup>18</sup> highlights: "Older people in contact with healthcare professionals should be asked routinely whether they have fallen in the past year and asked about the frequency, context and characteristics of the fall/s." Obtaining a full report of the circumstances, supported by witnesses' account, is an essential step of the fall's clinical history, because the patient may have a poor recollection of the event. The fall circumstances can help in the etiological differential diagnosis: an abrupt sit or lie down to standing change prior to falling, suggests orthostatic hypotension (OH), trip or slip suggests gait, balance or vision disturbance or an environmental hazard, drop attack can be due to vertebrobasilar insufficiency, and carotid sinus compression can lead to a fall when looking up or sideways. Symptoms experienced near the time of falling may also point to a potential cause. Dizziness can suggest OH, vestibular problem, hypoglycaemia, arrhythmia and drug-side effects, palpitations can be related to an arrhythmia, incontinence or tongue biting can suggest seizure, asymmetric weakness may be associated with cerebrovascular disease and chest pain a myocardial infarction or coronary insufficiency.

Particular attention should be paid on the evaluation of the patient's drugs regimen and the time relationship between the assumption and appearance of adverse effects. Antiarrhythmic drugs, antihypertensives, nitrates, diuretics, antidepressants, antipsychotics, and benzodiazepines, are relevant fall risk

**Table 1 – Causes of falls in the elderly: summary of 12 studies, modified by Rubenstein LZ et al.<sup>6</sup>**

Cause	Mean Percentage <sup>a</sup> (%)	Range <sup>b</sup> (%)
'Accident'/environment-related	31	1–53
Gait/balance disorders or weakness	17	4–39
Dizziness/vertigo	13	0–30
Drop attack	9	0–52
Confusion	5	0–14
Postural hypotension	3	0–24
Visual disorder	2	0–5
Syncope	0.3	0–3
Other specified causes <sup>c</sup>	15	2–39
Unknown	5	0–21

<sup>a</sup> Mean percentage calculated from the 3.628 falls in the 12 studies.

<sup>b</sup> Ranges indicate the percentage reported in each of the 12 studies.

<sup>c</sup> Arthritis, acute illness, drugs, alcohol, pain, epilepsy and falling from bed.

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