

# Age-Related Challenges in Symptom Management

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## Case Study

M.F. is a 73-year-old man with recurrent colorectal cancer with metastases to the small bowel, liver, lungs, and thoracic spine. He is admitted for pneumonia in the right lower and middle lobe with pleural effusion. His medical history includes osteoarthritis diagnosed 12 years ago, cardiovascular disease (hypertension and congestive heart failure after a myocardial infarction two years ago), type 2 diabetes diagnosed seven years ago, and postoperative deep vein thrombosis after a colectomy. Past cancer history includes prostate cancer diagnosed three years ago, treated with radical retroperitoneal prostatectomy with lymph node dissection and follow-up radiation therapy, and colon cancer diagnosed four months ago, treated with a total colectomy. He is currently receiving oxaliplatin and 5-fluorouracil, but his treatment has been complicated by bone marrow suppression and altered nutrition. Current medications include ceftriaxone IV, gentamicin IV, prednisone for five days, digoxin, furosemide, potassium chloride, lisinopril, atenolol, Humalog® insulin subcutaneous injection on a sliding scale, citalopram, vitamin K, and a multivitamin. Medications prescribed as needed include acetaminophen, hydrocodone and acetaminophen combination, albuterol nebulizers, and ibuprofen. A comprehensive symptom assessment reveals achy pain in the thoracic and lumbar spine area rated as a 7 on a 0–10 pain scale, an occasional sharp pain in his right knee, headache, nausea, dyspnea on exertion, sharp pain with inspiration, fatigue rated as a 6 on a 0–10 scale, insomnia, petechiae on the abdomen and lower extremities, anorexia with a 30-pound weight loss since the diagnosis of colon cancer, and sadness because of the diagnosis, disease progression, and loss of previous good health and active lifestyle. M.F. has been married for 47 years, and his wife is his primary caregiver and has several comorbidities herself.

## Overview

Adults age 60 and older account for an estimated 60% of all cancer survivors in the United States (American Cancer Society, 2014). It is projected that by 2030, 20% of the U.S. popula-

tion will be age 65 and older as the baby boomer generation ages (Federal Interagency Forum on Aging-Related Statistics, 2012). The group of older adults age 85 and older is projected to grow rapidly after 2030 as the baby boomers enter the oldest-old population group (Federal Interagency Forum on Aging-Related Statistics, 2012). Older adults are one of the most vulnerable and rapidly growing populations of cancer survivors. More than three-quarters of all cancers are diagnosed in individuals age 55 and older (Howlader et al., 2014). Cancer and heart disease are the leading causes of death in adults age 40 and older (Siegel, Ma, Zou, & Jemal, 2014). Men age 70 and older have a one-in-three probability of developing cancer, with the most common cancers being prostate, lung and bronchus, colon and rectum, and urinary bladder (Siegel et al., 2014). Women age 70 and older have a one-in-four chance of developing cancer, with the most common cancers being breast, lung and bronchus, colon and rectum, and uterine (Siegel et al., 2014). Many issues are unique to the aging population and may have an overall effect on symptom management in this population. These include the changes of normal aging; common health issues in the aging population such as chronic illnesses, frailty, and polypharmacy; and complex symptom relationships, which include groups of symptoms attributed to aging and chronic illness.

## Normal Aging

Many individuals age 65 and older experience normal physiologic changes that may affect the recognition of cancer-related symptoms (Tabloski, 2014). Table 1-1 includes normal physiologic changes of aging and considerations for symptom assessment and management in older adults. Aging skin has thinner layers because of the loss of cutaneous and subcutaneous tissue, fewer blood vessels and nerves, and less elasticity. Bone loss is a common occurrence in aging individuals and may result from altered calcium metabolism. Loss of soft tissue function, including muscle atrophy and slowing of the nervous system, may affect overall physical functioning and independence. Sensory loss and altered cognitive functioning may have an impact on overall functioning and successful pharmacologic and nonpharmacologic symptom management modalities.

An altered hematopoietic system in older adults may lead to a delayed response of bone marrow to therapy-induced bone marrow suppression and may increase the risk of infection and anemia (Tabloski, 2014). Older adults may have altered production and metabolism of intrinsic factor and iron. Alterations in the cardiopulmonary system may increase the adverse effects of symptom management medications. Alterations in the gastrointestinal system may affect multiple systems, such as vitamins D and B<sub>12</sub> and folic acid absorption; bowel elimination; and hepatic metabolism of pharmacologic agents (Tabloski, 2014). Changes in urinary elimination may have a major impact on drug metabolism via the kidneys, hydration status, and urinary continence. Cognitive changes usually are subtle and affect short-term memory acuity.

## Common Health Issues in the Aging Population

### *Chronic Illnesses and Conditions*

More than 75% of older cancer survivors have at least one chronic illness or condition at the time of cancer diagnosis (Deckx et al., 2012). About one-half of older cancer survivors may experience three or more comorbidities when compared to the general older adult

**TABLE 1-1** Physiologic Changes of Aging and Their Relationship to Symptom Management

Physiologic Change	Potential Impact on Symptom Management
<b>Skin</b>	
Decreased cutaneous layers and thinned sub-cutaneous tissue	Can increase risk for effects of anorexia and cachexia
Decreased blood vessels	May alter absorption of transdermal medications; may decrease ability to use IV route for symptom management
Decreased neurons and diminished nerve functioning	May alter pain sensation May increase sleep disturbances May decrease short-term memory and diminish coping abilities, leading to depression and mood disorders
Decreased elasticity	Increases risk for skin tears
<b>Bones</b>	
Altered calcium metabolism leading to bone loss	Increases risk for bone instability with metastatic bone disease
Tooth loss	Increases risk for malnutrition during therapy and subsequent nutrition-related symptoms such as anemia, mucous membrane and skin breakdown, and electrolyte disturbances
<b>Soft Tissue</b>	
Muscle atrophy	Decreases strength and endurance, which may increase fatigue
Nervous system slowing	Decreases fine motor control, which may have an impact on implementing symptom management strategies
Increased body fat	May have an impact on drug metabolism
<b>Sensory Loss</b>	
Hearing	May have an impact on communication of patient education information for symptom management
Vision	May have an impact on communication of patient education information for symptom management
Smell and taste	May have an impact on successful treatment of anorexia or cachexia
Touch	May reduce the patient's ability to hold reading materials or turn pages; may also reduce ability to prepare healthy food for self or open medication bottles
<b>Hematology and Immunology</b>	
Decreased bone marrow reserve	May have delayed response to infection and anemia

*(Continued on next page)*

<b>TABLE 1-1      Physiologic Changes of Aging and Their Relationship to Symptom Management (Continued)</b>	
<b>Physiologic Change</b>	<b>Potential Impact on Symptom Management</b>
Anemia related to decreased intrinsic factor production and decreased iron metabolism	May contribute to cancer-related fatigue
Increased clotting caused by increased platelet adhesion	May contribute to perfusion issues and lead to vague, noncancer-related symptoms
<b>Circulation</b>	
Enlargement of heart Slowing of electrical activity Changes in collagen in arteries, causing stiffness and thickening	Caution should be used with symptom management drugs that may affect cardiac function, such as medications used for treating neuropathic pain.
<b>Pulmonary</b>	
Decreased oxygen and carbon dioxide exchange because of decreased elasticity of lung tissue and alveoli enlargement	Caution should be used with medications that have a direct effect on pulmonary functioning such as benzodiazepines or opioids.
Decreased cough reflex and ciliary function	May increase risk of decreased airway clearance
<b>Gastrointestinal</b>	
Decline in small intestinal absorption of vitamins D and B <sub>12</sub> and folic acid	Increases risk for developing anemia and bone loss
Thinning of intestinal lining, decreased mucus production, and weaker intestinal muscles	Increases risk for constipation
Diminished liver function because of circulatory and metabolic changes	May have an impact on drug metabolism by slowing drug metabolism and leading to increased drug toxicity
<b>Urinary</b>	
Decreased renal perfusion beginning at age 40	Increases risk for developing drug toxicity, especially with nonsteroidal anti-inflammatory drugs and diuretics
Decreased number of nephrons and glomeruli with decreased glomerular filtration rate	May increase risk for dehydration or fluid overload
Decreased adaptability of kidneys to handle stress	Altered potassium regulation
Decreased bladder capacity and tone; decreased tone of pelvic floor	May lead to urinary incontinence
Enlargement of prostate	Eventually leads to lower urinary tract symptoms
<b>Cognitive</b>	
Decrease in short-term memory	May decrease the patient's ability to remember details of symptom onset, duration, and treatment

Note. Based on information from Tabloski, 2014.

population (Mohile et al., 2011). The most prevalent chronic conditions found in older adults, in addition to cancer, are hypertension, arthritis, heart disease, diabetes, and chronic respiratory illnesses (Deckx et al., 2012; Federal Interagency Forum on Aging-Related Statistics, 2012). Cancer survivors commonly experience the following chronic diseases: diabetes, venous thrombosis, osteoporosis, chronic obstructive pulmonary disease, heart failure, dyslipidemia, hypertension, hypothyroidism, obesity, and dementia (Deckx et al., 2012; Edgington & Morgan, 2011).

Individuals age 65 and older have trouble hearing (46% of men, 31% of women), trouble seeing (13% of men, 15% of women), and issues with dentition, with about 24% having no natural teeth (Federal Interagency Forum on Aging-Related Statistics, 2012). Comorbidities and their symptoms add to the complexity of cancer-related symptom identification and treatment. For example, an older adult with significant cardiac disease and lung cancer may have overlapping symptoms of chest pain, shortness of breath, fatigue, and cough, which may require simultaneous oncology- and cardiopulmonary-related treatments.

Older cancer survivors may correlate the “normal” symptom experience of cancer with aging or chronic illness, not with cancer or its treatment. The traditional retirement age (typically 65 years old) has been suggested to be a developmental marker for changes in symptom perception from abnormal to a normal expectation that comes with age (Williamson & Schulz, 1995). If symptoms are perceived to be part of the aging process or attributable to comorbidities, this altered symptom perception may obstruct the “normal signals” that would prompt a person to seek treatment. For example, an older adult experiencing chronic fatigue may attribute it to old age or heart disease, when in fact it is a serious symptom of chronic leukemia or multiple myeloma. Recently, Cheung, Le, Gagliese, and Zimmermann (2011) compared the reported symptom intensity of 1,358 outpatients with advanced cancer to determine age and gender differences. They found that adults age 61 and older did not experience clinically significant differences in symptom severity and symptom distress than those age 60 and younger, except for loss of appetite, which was increased in the older group (Cheung et al., 2011). Further research is needed to determine the factors that may influence symptom distress in older adults, such as the burden of multiple morbidities or polypharmacy.

In addition to redefining normal functioning within the context of aging and comorbidity, older adults may have a tendency toward a positive perception of their health. The Federal Interagency Forum on Aging Statistics (2012) reported that 76% of adults age 65 and older report their health as good to excellent. This positive perspective may be explained by the *positivity effect*, which is a preference for positive over negative perspectives during information processing about health, illness, and symptoms (Reed & Carstensen, 2012). When assessing symptoms of older adults using self-report, healthcare providers should determine the context of the symptom experience such as the perception of a person’s overall health and wellness, actual physical functioning, impact of symptoms on daily life, and normalization of symptoms due to age or chronic illness. Further research is needed to determine if older adults perceive symptoms the same way as younger populations.

## **Polypharmacy**

*Polypharmacy* generally refers to the use of multiple medications to treat health-related conditions; however, multiple definitions are used in the literature (Maggiore, Gross, & Hurria, 2010). Maggiore et al. (2010) listed several dimensions that are integrated into the definition of polypharmacy, including increased number of medications, potentially inappropriate medications, and medication underuse and duplication. A study of 975 community-dwelling women age 65 and older found a mean of 3.9 prescription medications used per person, 1.9

over-the-counter medications being taken used per person, and an 8% increase in the number of medications taken per each additional illness diagnosis. Cancer was associated with a 13% increase in medication use (Crencsil, Ricks, Xue, & Fried, 2010). Many factors contribute to the cause of polypharmacy, including (a) multiple chronic conditions, (b) age-related physiologic changes, (c) lack of knowledge about the use of multiple medications, (d) increased use of complementary therapies, (e) self-medication with over-the-counter medications, (f) recommended treatment guidelines, (g) hospitalization for acute illness, and (h) use of multiple healthcare providers (Maggiore et al., 2010; Sergi, De Rui, Sarti, & Manzato, 2011). The issue of polypharmacy has major implications with regard to the use of pharmacologic and herbal methods of symptom management in older cancer survivors.

Adverse drug reactions are a concern with older adults with multiple chronic conditions and symptoms who are taking multiple medications. For example, an 82-year-old with metastatic breast cancer, hypertension, congestive heart failure, and gastroesophageal reflux disease may be on multiple medications to manage her chronic conditions and their symptoms, such as multiple antihypertensives, a proton pump inhibitor, a diuretic, and oral chemotherapy. Pain management that includes a nonsteroidal anti-inflammatory drug may be contraindicated because of the risk for increased gastrointestinal irritation, increased risk of renal toxicity, and altered therapeutic effect of antihypertensives. Generally, the potential for an individual to have adverse drug reactions increases with the number of medications taken.

Budnitz and colleagues studied emergency department visits of older adults age 65 and older who had a diagnosis of adverse drug reactions (Budnitz, Lovegrove, Shehab, & Richards, 2011). Of those studied, 48.1% were age 80 or older. This study found that 54.8% of patients requiring hospitalization were taking more than five different medications. The medications found to cause the highest likelihood of adverse drug reactions leading to an emergency department visit were antineoplastic agents (51%), hematologic agents such as warfarin and antiplatelet drugs (44.6%), cardiovascular drugs (42.3%), and endocrine-related drugs such as insulin and oral hypoglycemic agents (42.1%).

Older adults taking multiple drugs are at increased risk for adverse drug reactions, which have an atypical presentation described by many patients as “feeling off.” Often these adverse drug reactions present as changes in functional status (activities of daily living, instrumental activities of daily living), mental status changes, or falls (Pretorius, Gataric, Swedlund, & Miller, 2013). One approach that may be helpful in assessing and planning future management of older adults with multiple drug therapies and the need for symptom control is the ARMOR (Assess, Review, Minimize, Optimize, and Reassess) tool. This tool uses a stepwise approach to working with older adults who are taking nine or more medications and are at high risk for adverse drug events (Haque, 2009).

In addition to adverse drug reactions, many negative outcomes may result from polypharmacy, including drug-drug or drug-food interactions that either enhance a drug’s potency or diminish its therapeutic effect, thus leading to further symptoms (Nobili, Garattini, & Mannucci, 2011). Multiple drugs may cause a cumulative toxic effect on the chemoreceptor trigger zone, leading to nausea, vomiting, and altered nutritional intake (Tracy & Morrison, 2013). Another complication of polypharmacy is the increased prevalence of poor adherence to a pharmacologic regimen (Nobili et al., 2011).

## **Frailty**

Older adults with cancer and multiple medical illnesses may experience loss of organ function, decrease in physical function reserve, and overall health decline. The term *frail elders* has been applied to older populations who have decreased physical, cognitive, and social

functioning leading to overall disability (Anderson, 2010; Golden, Martin, da Silva, & Roos, 2011). *Frailty* has been defined as a multidimensional phenomenon that includes a decline in daily physical functioning, imbalanced nutrition, cognitive decline, and sensory impairment (Ferrucci et al., 2003; Strawbridge, Shema, Balfour, Higby, & Kaplan, 1998). The concept of frailty may be defined as a clinical syndrome that includes the following characteristics: decreased physiologic and psychological homeostasis, chronic malnutrition (unintentional weight loss of 10 pounds or more in the past year, self-report of exhaustion, weakness), and sarcopenia (leading to slow walking speed and minimal physical activity) (Fried et al., 2001; Rodríguez-Mañás et al., 2013). Using a comprehensive geriatric assessment (CGA) tool to screen for frailty in the older adult oncology population may yield valuable information for healthcare providers to use when making treatment-related decisions (Pal, Katheria, & Hurria, 2010). Symptom assessment and management in the frail elder population is challenging and requires careful consideration of appropriate pharmacologic and nonpharmacologic approaches and their overall impact on patient functioning and quality of life.

## Cancer-Related Symptom Issues

### Assessment

Because most cancers occur in the older adult population, symptom assessment needs to include a broad approach, as members of this population are likely to have complex medical histories that include multiple chronic illnesses with concurrent symptoms and their treatments (Howlander et al., 2014). The presence of oncology-related symptoms should be explored in context with patients' medical and surgical histories and current medical and surgical treatments.

A recent systematic review of 83 articles addressing the use of geriatric assessment in the oncology setting suggested that a multidisciplinary CGA is instrumental in collecting valuable data for determining specific clinical interventions and their practical outcome endpoints for older cancer survivors (Puts et al., 2012). Typically, a CGA includes a medical history, physical and cognitive functional assessment (focused on activities of daily living, instrumental activities of daily living, and sensory function), psychological and social functioning, socioeconomic environment, nutrition, and polypharmacy (Ellis, Whitehead, O'Neill, Langhorne, & Robinson, 2011; Tabloski, 2014). The CGA screens older cancer survivors for the presence of geriatric syndromes, including pressure sores, sensory impairment, history of falls, incontinence, delirium, depression, dementia, and functional decline (Mohile et al., 2011; Puts et al., 2012; Tabloski, 2014). Commonly used CGA screening tools are listed in Table 1-2 and can be found online at the Hartford Institute for Geriatric Nursing's ConsultGerIRN website ([www.consultgerirn.org/resources](http://www.consultgerirn.org/resources)), which provides evidence-based online resources for nurses to enhance the clinical care of the older adult population with a variety of complex needs.

Heidrich, Egan, Hengudomsb, and Randolph (2006) studied symptoms, beliefs about symptoms, and quality of life in older breast cancer survivors ( $n = 18$ ) compared to older women without breast cancer ( $n = 24$ ). Women in both groups reported more than 10 symptoms, and no significant difference was noted between cancer survivors and those with no history of cancer. Study results indicate that all participants reporting symptoms mostly attributed their symptoms to aging and chronic health problems. Symptoms most frequently attributed to aging included memory problems (69%), decreased sex drive (35.7%), fatigue (33.3%), stiffness (28.6%), poor hearing (26.2%), and hair thinning (26.2%). Symptoms most fre-



**TABLE 1-2** Commonly Used Assessment Tools in a Comprehensive Geriatric Assessment

Focus of Assessment	Assessment Tools
Caregiver burden	Caregiver Strain Index*
Cognitive	The Mini-Cog* Confusion Assessment Method* Mini-Mental State Examination
Comorbidity	Number of comorbid conditions Charlson Comorbidity Index
Elder abuse	Elder Mistreatment Assessment*
Falls	Hendrich II Fall Risk Model*
Incontinence	Urinary Incontinence Assessment*
Independent living skills	Lawton Instrumental Activities of Daily Living Scale*
Nutrition	Mini Nutritional Assessment*
Polypharmacy	Chart review and medication count
Psychological	Geriatric Depression Scale*
Physical	Katz Index of Independence in Activities of Daily Living*
Skin breakdown	Braden Scale*

\*These tools are available with a brief description on the “Try This: Best Practices in Nursing Care to Older Adults” website (<http://www.consultgerirn.org/resources>), by the Hartford Institute for Geriatric Nursing, New York University College of Nursing.

Note. Based on information from Hartford Institute for Geriatric Nursing, n.d.; National Comprehensive Cancer Network, 2014b; Puts et al., 2012.

quently attributed to chronic illness included pain (45.2%), joint pain (40.5%), stiffness (26.2%), and aching (26.2%). Individuals who did not know the cause of their symptoms had poorer social functioning ( $r = -0.33$ ), poorer mental health (depression [ $r = 0.45$ ] and anxiety [ $r = 0.38$ ]), increased fatigue ( $r = -0.35$ ), and decreased purpose in life ( $r = -0.42$ ). This study suggested that broad symptom assessment and CGA may be important for planning comprehensive symptom management in older cancer survivors (Heidrich et al., 2006).

In a review of adult cancer survivors, Ganz (2009) suggested that symptoms in older cancer survivors may be multicausal and include late effects of surgical intervention, chemotherapy, radiation, and hormonal therapy and preexisting and post-treatment comorbidities. A study of 863 long-term cancer survivors by Zucca, Boyes, Linden, and Girgis (2012) assessed the quality of life and clusters of patient-reported symptoms in cancer survivors five to six years after diagnosis. Seventy-three percent of the study population was age 50 or older and included survivors of mostly breast, prostate, and large bowel cancers and melanoma of the skin who had received multimodality cancer treatments. Although 18% of survivors reported two or more symptoms in the past month, the reported symptoms formed a cluster including fatigue, insomnia, cognitive impairment, pain, dyspnea, loss of appetite, and gastrointestinal symptoms. The results of this study suggest that many symptoms experienced beyond cancer treatment may be attributed to noncancer-related comorbidities and aging. Clinicians must consider the symptoms of chronic illnesses, the primary cancer, and treat-



ments when performing a comprehensive symptom assessment on older adults. Oncology nurses have the opportunity to detect potential cancers or cancer-related complications in older adults by recognizing that symptoms may be intertwined with chronic illness and perceived changes of normal aging.

Oncology nurses can provide comprehensive symptom assessment and assess older survivors' perceptions regarding potential causes of symptoms. That data can identify valuable information on which to base a patient-centered symptom management plan.

## **Symptom Perception**

Symptoms in older adults may be complex in origin, and symptom perception of chronic illness, presenting symptoms of cancer, symptoms of disease exacerbation, and symptoms caused by treatment of disease may be blurred. Table 1-3 lists presenting symptoms of the most common cancers in older adults and common chronic conditions in older adults that have overlapping symptoms. Bender et al. (2008) suggested that symptom clusters (discussed in the following section) in older adults may be unique to chronic health problems and comorbidities within the context of the cancer experience.

## **Symptoms and Their Relationships**

Researchers have explored the relationships among symptoms, referred to as *symptom clusters*, including pain and fatigue, physical functioning, psychological and social well-being, and depression in older adults. Molassiotis, Wengström, and Kearney (2010) defined a symptom cluster as having the following characteristics: (a) the cluster has two or more symptoms that are related to each other at a given time, (b) symptoms occur together and share a significant variance with their cluster, (c) core symptoms within the cluster are stable over time, and (d) nondefining symptoms may be part of the cluster episodically based on the population and associated clusters. For example, an older adult cancer survivor experiencing a symptom cluster of pain, fatigue, insomnia, and anorexia that persists nine months after multimodal cancer may experience additional symptoms including decreased physical functioning, depression, anxiety, and spiritual distress that may be related, in part, to several comorbidities. Bellury et al. (2013) found that in older breast cancer survivors, multiple comorbidities ( $r = 0.45$ ) and high levels of symptom bother ( $r = -0.49$ ) were significantly related to decreased physical functioning. The implications for nursing symptom management include focusing on symptoms that have a negative impact on physical functioning, such as pain or fatigue, and current comorbidities and treatments; using client-centered goal setting to plan care; and critically evaluating the impact of symptom management strategies on patients' quality of life. Exploration of symptom clusters in individuals with chronic diseases and cancer may further illuminate the complexity of symptoms in older adults with multiple chronic illnesses.

The symptom of pain is well studied in the older adult population. The pain experience for older adults with cancer includes physiologic, psychological, spiritual, affective, and contextual dimensions and requires careful assessment (Molton & Terrill, 2014). The contextual meaning of pain includes sociocultural values and beliefs and perceptions of disease (both cancer and other chronic illnesses) (Molton & Terrill, 2014). Hadjistavropoulos et al. (2007) conducted an interdisciplinary review of pain assessment in older adults and reported a comprehensive consensus statement including recommendations for physical evaluation, use of self-report, assessment of older adults with dementia, functional status evaluation, emotional functioning evaluation, and medication history. This multidisciplinary group represented medicine, nursing, pharmacy, psychology, occupational therapy, physiotherapy, neurology,

**TABLE 1-3** Examples of Comparisons of Presenting Symptoms of Common Cancers and Chronic Conditions Experienced by Older Adults

Cancer Diagnosis	Common Presenting Symptoms	Chronic Illness	Common Presenting Symptoms
Colon and rectal cancers	Early stage: Minimal symptoms Advanced disease: Rectal bleeding; change in bowel habits; blood in stool; lower abdominal cramps; continual pain in lower back, pelvis, and upper thighs; anorexia and weight loss (American Cancer Society [ACS], 2014)	Diverticulitis  Inflammatory bowel disease	Steady left lower-quadrant or mid-abdominal pain, altered bowel habits (diarrhea, constipation, or both), increased flatus, anorexia, low-grade fever, trace blood or mucus in stool (Schmelzer, 2014)  Diarrhea, bloody stools, weight loss, abdominal pain, fever, fatigue, rectal bleeding (Crohn disease) (Schmelzer, 2014)
Lung and bronchus cancer	Persistent cough, blood-streaked sputum, chest pain, voice change, recurrent pulmonary infections (ACS, 2014)	Chronic cardiac disease	Chest pain, palpitations, dyspnea, orthopnea, cough, wheezing, cyanosis, hemoptysis, tachypnea, fatigue, muscle weakness, syncope, weight gain, dependent edema, anxiety, confusion, insomnia, decreased exercise tolerance (Moffa, 2014)
Metastatic breast cancer	Pain, dyspnea, hemoptysis, cough (commonly occurs with lung metastases); fatigue, weakness, altered mentation (commonly occurs with central nervous system metastases) (Irvin et al., 2011)	Chronic lung disease	Productive cough, decreased exercise tolerance, wheezing, shortness of breath, prolonged expiration, dyspnea on exertion or at rest (Mathers, 2014)
Prostate cancer	Early disease: No symptoms Advanced disease: Weak or interrupted urinary flow, difficulty starting or stopping urinary stream, nocturnal urinary frequency, blood in urine, pain or burning with urination (ACS, 2014)  Metastatic disease: Continual pain in lower back, pelvis, and upper thighs	Benign prostatic hypertrophy	Increasing intensity of lower urinary tract symptoms (nocturia, daytime urinary frequency, urgency, urinary hesitancy, weak urinary stream) (Dirksen, 2014)

and gerontology. They provided a critical review of the most common assessment tools in pain management of older adults and suggested that the patient’s ability to report pain is an important factor in selecting a pain assessment method and tool (Hadjistavropoulos et al., 2007). Figure 1-1 presents a summary of these recommendations.

Scientific knowledge has begun to expand the understanding of differences in pain perception between younger and older individuals. Farrell (2012) suggested that pain perception may be affected by changes that occur in the normally aging brain, such as loss of brain

**FIGURE 1-1** Recommendations for Pain Assessment in Older Adults

- Review patient history and physical examination and note any sensory changes or deficits, sensory assistive devices, or cognitive deficits and physical functioning that may indicate a pain issue.
  - Comorbidities
  - Current medication list
- Determine the individual's ability to complete the pain assessment.
- Use an individualized approach to assessment.
- Choose an appropriate pain measurement tool.
  - Recommended general measures for self-report with cognitively intact patients: numeric rating scale, verbal descriptor scale, pain thermometer
  - Recommended detailed self-report assessment: Brief Pain Inventory, Geriatric Pain Measure, McGill Pain Questionnaire
  - Recommended measures for self-report with mild to moderate cognitive impairment: Colored Analog Scale, the 21-point box scale or numeric rating scale, verbal descriptor scale
  - Consider activities of daily living task-oriented assessment or performance-based assessment.
  - Consider soliciting the assistance of a familiar caregiver to assist with pain assessment.
- Recommendation for a functional assessment tool: Functional Pain Scale, Home Assessment Profile, Physical Performance Test, Timed "Up and Go" Test
- Associated measures for psychosocial impact of pain: Geriatric Depression Scale, Beck Anxiety Inventory, Pain Anxiety Symptoms Scale, Brief Pain Impact Assessment
- Use consistent measure and language with the patient.

*Note.* Based on information from Hadjistavropoulos et al., 2007.

volume in the prefrontal cortex and the hippocampus. In addition, pain perception may be altered because of reduced functioning of dopaminergic neurons in the basal ganglia (Farrell, 2012). Emerging evidence suggests that older people may have altered pain sensitivity, are less tolerant of pain, and may experience pain due to tissue injury for a longer period of time (Farrell, 2012). Oncology nurses need to carefully assess the current pain of older adults within the context of physiologic age and condition and general pain experience. Pain has been studied in relationship to other cancer-related symptoms, including fatigue and depression (Geerlings, Twisk, Beekman, Deeg, & van Tilburg, 2002; Kurtz, Kurtz, Stommel, Given, & Given, 2001), and fatigue (Bennett, Stewart, Kayser-Jones, & Glaser, 2002; Given, Given, Azzouz, Kozachik, & Stommel, 2001; Hodgson & Given, 2004), along with their contribution to decline in physical functioning.

## Evidence-Based Interventions

### *Pharmacologic Management*

Pharmacologic intervention for symptom management in older adults with cancer requires the consideration of current health status, including physical and mental functioning, and the medical treatment regimen. For example, a 78-year-old with metastatic colon cancer to the liver and a history of stroke and multi-infarct dementia may be challenging to assess for symptom presence and distress, treat with appropriate medications for symptom control, and then evaluate as to the outcome of the symptom management. Clinicians should take care to avoid the use of medications that may cause severe toxicities in older adults. The American Geriatrics Society (AGS) convened an interdisciplinary panel of nationally recognized experts in geriatric care, clinical pharmacology, and psychopharmacology to reach a consensus about potentially inappropriate medications for older adults (AGS 2012 Beers Cri-

teria Update Expert Panel, 2012). These consensus data were used to revise one of the current tools, the Beers Criteria, which guides care providers when prescribing medications for adults age 65 and older.

Table 1-4 displays a comprehensive list of medications and their potential toxicities related to oncology symptom management in the older adult population. When determining the appropriate pharmacologic management for cancer-related symptoms in older adults, clinicians should consider the individual’s clinical condition, functional status (both physical and cognitive), current comprehensive drug list (both oncology-related and general), and overall prognosis (AGS 2012 Beers Criteria Update Expert Panel, 2012).

Symptoms in older adults can be managed effectively with conservative pharmacologic therapies (Nobili et al., 2011). Adult dosing of medications is generally safe for older adults, but clinicians must seriously consider the patient’s size, nutritional status (e.g., serum albumin level, as some drugs are protein bound), renal and hepatic function, lifestyle and life responsibilities, and economic issues. The general rule of “start low and go slow” with regard to dosing of symptom management medications is especially important in the older adult population. Comprehensive evidence-based clinical guidelines for treating older adults with cancer and complex symptoms such as pain are available to clinicians and can assist in critical clinical decision making about the application of symptom management strategies (AGS Panel on the Pharmacological Management of Persistent Pain in Older Persons, 2009; National Comprehensive Cancer Network®, 2014b).

Two additional tools are available to safely treat symptoms in older cancer survivors. The Screening Tool of Older Persons’ Prescriptions (STOPP) criteria provides detailed assessment criteria, using a physiologic systems approach, to determine potentially inappropriate medications within the context of chronic illness and its treatment (Gallagher & O’Mahony, 2008; Pretorius et al., 2013; Ryan, O’Mahony, Kennedy, Weedle, & Byrne, 2009). The Screening Tool to Alert doctors to the Right Treatment (START) criteria (Barry, Gallagher, Ryan, & O’Mahony, 2007) uses a systems approach to the assessment of delivery of appropriate treatments for com-

TABLE 1-4	Potentially Inappropriate Symptom Management Medications for Older Adults
Drug	Potential Toxicities
<b>Nonopioid Analgesics</b>	
Nonsteroidal anti-inflammatory drugs (NSAIDs)	May cause or exacerbate gastric or duodenal ulcers* Prolonged clotting time and international normalized ratio* Decreased platelet function*
Indomethacin	Central nervous system (CNS) effects (highest of all NSAIDs)*
Ketorolac	Asymptomatic gastrointestinal conditions*
Aspirin (> 325 mg)	Asymptomatic gastrointestinal conditions* Decreased platelet function May cause or exacerbate gastric or duodenal ulcers*
Naproxen	Gastrointestinal bleeding* Renal failure* High blood pressure* Heart failure*

(Continued on next page)

**TABLE 1-4** Potentially Inappropriate Symptom Management Medications for Older Adults (*Continued*)

Drug	Potential Toxicities
<b>Opioids</b>	
Meperidine	Intense side effect profile for adverse effects; most critical in individuals with renal compromise* CNS effects such as seizures
Morphine, hydromorphone, fentanyl	Intense side effect profile at higher doses, especially CNS effects such as somnolence, respiratory depression, and delirium*
<b>Adjuvant Drugs</b>	
Muscle relaxants (methocarbamol, carisoprodol, chlorzoxazone, metaxalone, cyclobenzaprine, baclofen)	Anticholinergic effects** Sedation* Weakness* Cognitive impairment*
Tricyclic antidepressants (amitriptyline and amitriptyline compounds, doxepin)	Strong anticholinergic effects** May lead to ataxia, impaired psychomotor function, syncope, and falls Cardiac arrhythmias (QT interval changes)* May produce polyuria or lead to urinary incontinence* May exacerbate chronic constipation
Antihistamines (diphenhydramine, hydroxyzine, promethazine)	Potent anticholinergic properties** May lead to confusion and sedation
Benzodiazepines	Increased sensitivity at higher doses with prolonged sedation and increased risk for falls
• Short-acting (lorazepam ≥ 3 mg, oxazepam ≥ 60 mg, alprazolam ≥ 2 mg)	May produce or exacerbate depression Smaller doses may be both effective and safer.
• Long-acting (diazepam)	CNS effects* May cause or exacerbate respiratory depression in chronic obstructive pulmonary disease* May produce polyuria or lead to urinary incontinence*
Selective serotonin reuptake inhibitor antidepressants (fluoxetine, citalopram, paroxetine, sertraline)	May produce CNS stimulation, sleep disturbances, and increased agitation* May exacerbate or cause syndrome of inappropriate secretion of antidiuretic hormone or hyponatremia
Decongestants	High level of CNS stimulation, which may lead to insomnia*
CNS stimulants (methylphenidate)	Altered CNS function, leading to cognitive impairment* Appetite-suppressing effect*

\* High severity rating

† Anticholinergic effects include some of the following symptoms: blurred vision, constipation, drowsiness, sedation, dry mouth, tachycardia, urinary retention, confusion, disorientation, memory impairment, dizziness, nausea, nervousness, agitation, anxiety, facial flushing, weakness, and delirium.

Note. Based on information from American Geriatrics Society 2012 Beers Criteria Update Expert Panel, 2012.

mon chronic illnesses and conditions based on best treatment practices (Pretorius et al., 2013; Ryan et al., 2009). The combined use of the Beers criteria (AGS 2012 Beers Criteria Update Expert Panel, 2012) and the STOPP (Gallagher & O'Mahony, 2008) and START (Barry et al., 2007) criteria can assist clinicians in safely managing complex symptoms in older cancer survivors while balancing pharmacologic treatment for multiple comorbidities (O'Mahony et al., 2010).

## ***Nonpharmacologic Management***

Many of the nonpharmacologic techniques generally used for cancer symptom management can be used with the older adult population. Clinicians must adapt these interventions to the physical and cognitive limitations of patients and their individualized responses. Physical activity (exercise and strength training) is one evidence-based intervention that is effective in many chronic illness populations and in older adults with cancer (Speck, Courneya, Måsse, Duval, & Schmitz, 2010). A systematic review and meta-analysis of 60 studies was conducted to determine the extent of effectiveness of physical activity on improved healthcare outcomes of cancer survivors during and after treatment (Speck et al., 2010). Increased physical activity in cancer survivors was found to have a positive small to moderate effect on upper ( $r = 0.99$ ) and lower ( $r = 0.90$ ) body strength, fatigue ( $r = 0.54$ ), and general symptoms ( $r = 0.30$ ). This suggests that increased physical activity may be an important nonpharmacologic intervention for managing symptoms in older cancer survivors and improving overall healthy aging. The conclusions from this review support an earlier integrative review on the impact of physical activity on older adults with cancer and comorbidity, which found that physical activity interventions decrease fatigue, elevate mood, improve physical functioning, decrease role limitations, decrease falls, and modify cardiovascular risk factors (Penedo, Schneiderman, Dahn, & Gonzalez, 2004).

Integrative therapies such as acupuncture, acupressure, Tai Chi, yoga, and Qigong also have been reported to have a positive effect on symptoms in older cancer survivors. A recent review of current literature examined the treatment of cancer-related stress with complementary and alternative medicine such as tailored exercise, Tai Chi Chuan, and yoga (Chandwani et al., 2012). The review concluded that carefully tailored exercise, Tai Chi Chaun, and yoga may have a positive effect on the physical and mental health of older cancer survivors by improving their physical strength and balance, mood, and overall quality of life. Campo et al. (2014) conducted a 12-week randomized controlled trial to study the feasibility of using Qigong to improve fatigue and distress levels in 40 older prostate cancer survivors. The results of this study demonstrated significant improvement of fatigue levels and distress levels in the Qigong group (69%) versus the comparison group (31%), who did stretching only. Further research is needed to determine the overall impact of integrative therapies on older adults across the cancer survivorship continuum.

Older adults are reported to use multiple nonpharmacologic methods to control pain, and many perceive these therapies to be effective in managing their pain (Barry, Gill, Kerns, & Reid, 2005; Jakobsson, Hallberg, & Westergren, 2004). Frequently used nonpharmacologic techniques include physical therapies (heat, massage, stretching, muscle release), cognitive behavioral therapies (distraction, imagery, relaxation exercises), assistive devices (canes, walkers, raised toilet seats and chairs, large-grip utensils), and complementary therapies (therapeutic touch, music therapy, exercise, reminiscence therapy) (AGS Panel on the Pharmacological Management of Persistent Pain in Older Persons, 2009; Barry et al., 2005; Coyle & Derby, 2006; Jakobsson et al., 2004). Many of these techniques may be used for the management of other cancer-related symptoms, such as fatigue, depression, anxiety, and functional decline; however, current evidence for use of these interventions in the older adult cancer population is minimal.



## Expected Patient Outcomes

Quality symptom management is key to enhancing the overall quality of life and optimal functioning of older adults with cancer-related symptoms. General cancer symptom management principles may be safely applied to the gero-oncology population using a multidisciplinary team approach with careful consideration of the physiologic changes of aging. The incorporation of an abbreviated CGA for all individuals with cancer who are age 65 and older may provide valuable insights into the most appropriate holistic symptom management to implement. Having general knowledge of the normal changes that occur with aging may assist members of the healthcare team to be more vigilant in assessing for positive and negative patient responses to therapy. This knowledge will aid in the planning and implementation of age-specific education about symptom management therapies. Maintaining a caring partnership with older adults with cancer and their families will provide the best possible symptom management outcomes and will lead to higher levels of functioning and better overall quality of life.

## Need for Future Research

Clinical research on symptom management interventions for older adults with cancer is sparse, and studies need to be done to examine the symptoms of older cancer survivors with multiple chronic illnesses. Generally, symptoms that are common in the oncology population are also common in the older adult population, but more research is needed regarding the appropriate assessment of symptoms, prevalence of these symptoms, distress and intensity of symptoms, overlap with common symptoms in chronic illness, and symptom management within the older population.

## Conclusion of Case Study

The nurse conducts a screening of the functional status of M.F., which indicates that he is at risk for functional decline because of symptoms related to cancer and other comorbidities, nutritional deficits, chemotherapy-related bone marrow depression, and reactive depression. The patient is currently at risk for falls due to spine pain and its effect on safe movement and skin breakdown due to nutritional deficits, diabetes, and prednisone therapy. An assessment of laboratory values reveals decreased renal and hepatic function beyond the expected decline with aging and chemotherapy-induced pancytopenia. Functional decline may be the most important factor in achieving optimal symptom control. M.F. clearly verbalizes that *quality* of life is more important than *quantity* of life. He defines quality of life as having enough symptom control to have clear thinking and spend time with his close friends and family.

Collaborative goal setting is a key component in achieving optimal symptom management outcomes, which is defined by the patient as quality of life. Pharmacologic management requires careful consideration of comorbidities and drug-drug interactions with cardiac, pulmonary, arthritis, diabetes, and pneumonia-related medications. The symptom of pain may be the most challenging to treat because there are multiple sources of pain caused by the cancer and acute and chronic illnesses. Although acetaminophen is the drug of choice for pain management in older adults, this patient reports significant pain, which



may not be responsive to acetaminophen. The patient also has decreased hepatic function. Ibuprofen may be the drug of choice for bone pain, but it may cause renal impairment, exacerbate nausea, increase the risk of bleeding (especially gastrointestinal bleeding), and decrease the therapeutic effect of the patient's antihypertensives (Tracy & Morrison, 2013). Opioids such as morphine may be an alternative to treat this patient's pain and dyspnea; however, low doses should be used, and the patient should be monitored carefully for adverse effects such as delirium (Molton & Terrill, 2014; Nobili et al., 2011). Nausea should be treated by a medication with a low adverse effect profile such as low doses of a selective 5-HT<sub>3</sub> receptor blocker (e.g., ondansetron). Fatigue may be treated by using nutritional support and hematopoietic growth factors (National Comprehensive Cancer Network, 2014a). The nurse considers all of the data for this complex case and develops a collaborative care plan, which includes the use of a 5-HT<sub>3</sub> antagonist, low-dose oxycodone, supplemental oxygen, fatigue management strategies such as short daily walks and establishing a sleep routine, and nutritional supplements.

The nurse also recommends appropriate nonpharmacologic therapies for this patient, which include patient and family education, relaxation exercises such as music therapy, and gentle physical activity when the patient has recuperated from the pneumonia. Progressive physical activity is important in assisting M.F. to treat his fatigue and attain his maximum level of functioning and may improve his ability to cope with the disease process (Speck et al., 2010).

After completing the assessment and developing the symptom management plan, the nurse evaluates the symptom management plan and implementation with respect to their effect on the symptoms, the stability of the patient's chronic illnesses, the caregiver's perspective, and the patient's overall quality of life as he defines it.

## Conclusion

Approximately 20% of the U.S. population will be age 65 and older by 2030, and nurses will be challenged to care for a population with multiple complex healthcare needs, including cancer (Federal Interagency Forum on Aging-Related Statistics, 2012). The intertwined nature of symptoms related to cancer and its treatment, chronic illnesses, and an individual's perception of normal aging presents a challenge for optimal symptom management in the gero-oncology population. Nurses must utilize evidence-based practices in oncology and geriatric care to ensure quality care for older adults with cancer. These practices include comprehensive assessment of health issues that are common to older patients with cancer, such as frailty, polypharmacy, and physical, cognitive, and social functioning, along with comprehensive management of each. Nurses are essential members of the interdisciplinary cancer care team and are responsible for ensuring the best possible symptom management outcomes without compromising the quality of life of the gero-oncology population.

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