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## Geriatric Assessment in Oncology Practice

Arti Hurria, MD<sup>1</sup>

<sup>1</sup>City of Hope, Duarte, CA

### Abstract

There is no standard tool for assessing the “functional age” of an older adult with cancer, although it is widely recognized that chronological age does not capture the heterogeneous physiologic and functional status of older adults. Integrating a “geriatric assessment” into oncology research and clinical practice would help fill this void. Geriatric assessment covers factors that predict morbidity and mortality in older adults, including functional status, comorbidity, cognition, psychological state, nutritional status, and social support. This assessment provides a broader overall understanding of individual characteristics that affect life expectancy. In addition, this assessment identifies areas of vulnerability among older adults for which further evaluation or intervention is indicated. In this article, we will discuss the utility of a geriatric assessment in oncology practice, review data that attest to the benefits of the assessment, and issue a call for further research into how we can integrate this assessment into oncology care. Doing so will help us to develop targeted interventions and optimize cancer outcomes in this rapidly growing population.

### Keywords

geriatric assessment; cancer; aging; oncology

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With the rise in life expectancy and the aging of the baby boomers, the United States population age 65 and older is projected to double in size from 2000 to 2030. Since 60% of cancer incidence and 70% of cancer mortality occur in patients age 65, this group of older adults is at increased risk for cancer.<sup>1</sup> Among the challenges facing older adults and their healthcare providers is the fact that cancer or cancer treatment are physiologic stressors, and increased age has been noted to be a risk factor for toxicity to certain cancer therapies.<sup>2</sup> Further complicating the matter is that most oncology clinical trials have a low representation of older adults, and only a small number of studies have focused on patients of advanced chronological age or those with pre-existing frailty.<sup>3,4</sup> Therefore, the data to guide treatment recommendations are limited for this population that is most at risk for cancer.

It is widely recognized that chronological age does not capture the heterogeneous physiologic and functional status of older adults. For example, it is not uncommon for oncologists to describe a 75-year-old patient as a “young 75” or an “old 75,” and implicit in this description is the contrast between “functional age” and “chronological age.” However, no standard definition of functional age exists for use in daily oncology practice. The

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**Corresponding Author:** Arti Hurria, MD City of Hope 1500 E. Duarte Road Duarte, CA 91010 ahurria@coh.org Phone 626-256-4673 x64173 FAX: 626-301-8898.

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integration of a “geriatric assessment” into oncology research and clinical practice would help fill this void.

A geriatric assessment would identify factors other than chronologic age that predict for morbidity and mortality among older adults.<sup>5</sup> Such an assessment evaluates functional status, comorbid medical conditions, psychological state, cognitive function, social support, and nutritional status. In addition, a review of the patient's medication list is performed in order to evaluate for poly-pharmacy and drug interactions, as well as to identify and discontinue medications associated with a high risk of side effects in older adults. As a whole, this evaluation provides a broader understanding of factors other than chronological age that may impact life expectancy. In addition, the assessment identifies areas of vulnerability among older adults for which further evaluation or intervention may be indicated. Although the incorporation of a geriatric assessment in oncology practice and research is still in early development, recent studies present a compelling rationale for including such an assessment in oncology care.

The domains of a geriatric oncology assessment are described below. The value of integrating a geriatric assessment in oncology practice is summarized in table 1.

### 1) Functional Status

Functional dependence is associated with a poorer prognosis and diminished tolerance to cancer therapy. In a study of older adults with non-small cell lung cancer, a need for assistance with instrumental activities of daily living was associated with an increased risk of mortality.<sup>6</sup> Among older adults undergoing cancer surgery, the need for assistance with instrumental activities of daily living was associated with an increased risk of postoperative complications.<sup>7</sup> In patients with ovarian cancer, functional dependence was associated with an increased risk of chemotherapy toxicity.<sup>8</sup> Functional assistance is more likely to be required in older adults with cancer than those without cancer, and this need for assistance persists among older cancer survivors.<sup>9, 10</sup>

### 2) Comorbid Medical Conditions

Comorbid medical conditions influence life expectancy, tolerance to cancer therapy, and also disease prognosis.<sup>11</sup> The risk from comorbid medical conditions may outweigh the risk of the cancer. For example, in a study of older adults with hormone-receptor-positive stage I breast cancer who underwent a lumpectomy and were receiving tamoxifen, radiation therapy to the preserved breast was associated with a decreased risk of local recurrence, but no difference in overall survival or breast-cancer-specific survival. With or without radiation therapy, most of these patients would probably die of a comorbid condition other than breast cancer.<sup>12</sup> Comorbidity may also influence tolerance to cancer therapy. For example, cardiac comorbidity and left ventricular ejection fraction need to be considered prior to prescribing an anthracycline based chemotherapy regimen. The choice of cancer therapy may also be influenced by the risk for long term side effects. For example, patients with preexisting neuropathy due to diabetes, may wish to avoid a neurotoxic chemotherapy drug, such as a taxane.

### 3) Nutritional Status

Nutritional status, in particular unintentional weight loss, is a poor prognostic factor among patients with cancer.<sup>13</sup> On the other hand, studies show that obesity is also a common problem facing cancer survivors.<sup>10, 14</sup> Early identification of weight gain or weight loss will alert healthcare providers to recommend a nutritional intervention, as well as to evaluate for

the underlying cause. A study of older cancer survivors demonstrated that a home-based diet and exercise intervention is feasible and can improve nutritional well-being.<sup>14</sup>

#### 4) Cognitive Function

Assessing cognitive function is especially critical when the treatment regimen requires patients to follow complex instructions in order to minimize the risk of life-threatening toxicities. Examples include oral chemotherapy and supportive care medications. First the cognitive impairment must be recognized, and then it is essential to enlist family and medical staff support for someone with cognitive impairment who is undergoing cancer therapy. There is a growing body of literature evaluating the impact of cancer therapy on cognitive function; however, few of these studies have focused on older adults.<sup>15, 16</sup> Additional research is needed to understand the short- and long-term impact of cancer therapy on the cognitive function of older adults.

#### 5) Psychological State and Social Support

The geriatric and oncology literature demonstrate that social isolation is a poor prognostic factor.<sup>17, 18</sup> Geriatric assessment and intervention may play the greatest role among those who are socially isolated. In these circumstances, the healthcare team may be the primary source of social support.<sup>19</sup> Depression is common in patients with cancer; however, the symptoms are often not recognized. A recent trial utilizing oncologic geriatric assessment and intervention reported improved mental health scores and pain control in patients receiving interventions.<sup>20</sup>

Several questions remain regarding how to best integrate a geriatric assessment into daily oncology practice, as well as into the research arena; and different tools may be needed in order to accomplish the desired goals in each respective setting. For example, in clinical practice, oncologists need a time-efficient and cost-effective method to identify older adults who are most vulnerable for toxicity and who need further evaluation or interventions in order to optimize cancer therapy and minimize associated risks. To address this challenge, the National Comprehensive Cancer Network Senior Adult Oncology Taskforce has outlined geriatric assessment and intervention recommendations for older adults with cancer.<sup>21</sup> This offers an ideal venue for collaboration between oncologists and geriatricians, a collaboration that could make a major difference in the care of older vulnerable adults with cancer.<sup>22-24</sup>

For research studies, a broader, more comprehensive assessment would help to describe the baseline characteristics of older patients in a study, identify risk factors for toxicity or functional decline, and describe short- and long-term changes in geriatric assessment parameters (ie, functional status, comorbid medical conditions, etc.) associated with treatment. The Cancer and Leukemia Group B is already testing the feasibility of incorporating a geriatric assessment in clinical trials.<sup>25</sup> However, several questions remain. Which variables in the geriatric assessment predict the short- or long-term risk of toxicity to cancer therapy? And will a tailored intervention decrease this risk, or should the chemotherapy plan be modified? Is there a time-effective and cost-effective way to complete a geriatric assessment in the oncology practice? What is an adequate screening tool? When should a patient be referred to a geriatrician for collaborative care? Ultimately, further research is needed in order to answer these questions and provide evidence-based care for this growing population of older adults with cancer.

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## Abbreviations

CNS            central nervous system

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**Table 1****Benefits of a Geriatric Assessment in the Care of Older Patients with Cancer**

<b>Geriatric Assessment Domain</b>	<b>Value of this Assessment Domain in the Older Cancer Patient</b>	<b>Examples of Geriatric Assessment Questions Tailored to Oncology Practice</b>
Functional status	<ul style="list-style-type: none"> <li>- Functional dependence predicts increased risk of morbidity and mortality, which must be factored into therapy decisions</li> <li>- Functional assessment identifies patients for whom additional interventions may be vital (ie, arranging transportation, visiting nurse, home health aide, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- How will the patient seek attention if there is a cancer- or treatment-related complication (ie, neutropenic fever)?</li> <li>- Is the cancer or cancer treatment impacting the patient's functional status? - Who will assist the patient in getting to doctor's appointments?</li> <li>- Who will assist the patient in completing daily activities?</li> </ul>
Comorbid medical conditions	<ul style="list-style-type: none"> <li>- Identify competing causes of morbidity and mortality</li> <li>- Identify medical conditions that may be exacerbated by cancer therapy</li> </ul>	<ul style="list-style-type: none"> <li>- Does the patient have any other illnesses that may influence the choice of cancer treatment (ie, preexisting neuropathy, renal insufficiency)?</li> <li>- What is the impact of the cancer vs. the comorbid medical condition on life expectancy?</li> </ul>
Cognitive status	<ul style="list-style-type: none"> <li>- Assess the patient's comprehension of diagnosis and treatment options</li> <li>- Identify patients who may have difficulty adhering to oral medications or remembering to seek medical attention for side effects</li> <li>- Identify and enlist social support for patients with cognitive impairment</li> <li>- Identify patients who require CNS evaluation to rule out metastases</li> </ul>	<ul style="list-style-type: none"> <li>- Does the patient understand the risk-benefit ratio of the cancer therapy?</li> <li>- Will the patient be able to remember to take supportive care medications?</li> <li>- Can the patient recite the potentially life- threatening complications of the therapy and indications of when to seek attention?</li> <li>- Are there any neurological symptoms suggesting brain metastases?</li> </ul>
Nutritional status	<ul style="list-style-type: none"> <li>- Identify patients at risk for nutritional compromise</li> <li>- Identify patients who would benefit from a nutrition consult and/or a diet and exercise program</li> </ul>	<ul style="list-style-type: none"> <li>- Is the patient experiencing unintentional weight loss?</li> <li>- Does the patient have mouth sores from cancer therapy? Is this limiting their ability to use dentures?</li> <li>- Are side effects from cancer or cancer therapy limiting the patient's ability to prepare or consume meals?</li> </ul>
Psychological state and social support	<ul style="list-style-type: none"> <li>- Identify patients with depression, anxiety, or distress for which evaluation and treatment are warranted</li> <li>- Identify socially isolated patients who may require additional assistance during cancer therapy</li> </ul>	<ul style="list-style-type: none"> <li>- Is the patient depressed or anxious?</li> <li>- Would they benefit from a social work contact or psychiatry support?</li> <li>Who is the patient's main social support?</li> </ul>
Medication review	<ul style="list-style-type: none"> <li>- Identify potential drug interactions</li> <li>- Possibly substitute medications with a lower risk of side effects</li> </ul>	<ul style="list-style-type: none"> <li>- Does the chemotherapy or supportive care medication interact with the patient's routine daily medications?</li> <li>- Are all of the medications on the list required? Can any be eliminated or substituted?</li> </ul>