Will my elderly patient be able to tolerate chemotherapy?
What tools, if any, are validated for comprehensive evaluation of the older adult (>65) with cancer to determine his/her ability to tolerate chemotherapy?

Carol Howe, MD, MLS, Assistant Librarian, Arizona Health Sciences Library, and Informationist, Arizona Reynolds Program of Applied Geriatrics, University of Arizona College of Medicine

The following is a response by Carol Howe, MD, MLS, on March 12, 2007 to this question submitted by Setsuko Chambers, MD, Director, Division of Women’s Cancers, Arizona Cancer Center. This series is part of the Arizona Reynolds Program of Applied Geriatrics at the University of Arizona, established through a grant from the Donald W. Reynolds Foundation.

Many authors, particularly in articles published between 2000 and 2005, advocate adopting the Comprehensive Geriatric Assessment (CGA) to help clinicians determine the level of care that would be appropriate to treat elderly patients with cancer. Balducci and Extermann, for example, state the following:

Aging is highly individualized: chronologic age may not reflect the functional reserve and life expectancy of an individual. A comprehensive geriatric assessment best accounts for the diversities in the geriatric population. The advantages of the CGA include:

1. Recognition of potentially treatable conditions such as depression or malnutrition, that may lessen the tolerance of cancer treatment and be reversed with proper intervention;
2. Assessment of individual functional reserve;
3. Gross estimate of individual life expectancy; and
4. Adoption of a common language to classify older cancer patients.

The CGA allows the practitioner to recognize at least three stages of aging:

1. People who are functionally independent and without comorbidity, who are candidates for any form of standard cancer treatment, with the possible exception of bone marrow transplant.
2. People who are frail (dependence in one or more activities of daily living, three or more comorbid conditions, one or more geriatric syndromes), who are a candidate only for palliative treatment; and
3. People in between, who may benefit from some special pharmacological approach, such as reduction in the initial dose of chemotherapy with subsequent dose escalations.\(^1\) (abstract)

Chen et al. recognize the potential usefulness of a CGA model for all patients with cancer as the latter “may precipitate classic geriatric syndromes such as falls, malnutrition, delirium, and urinary incontinence” even in non-elderly patients.\(^2\)

Extermann has written several articles advocating the use of the CGA. In Extermann et al's 2005, article for example, the authors note:

There is strong evidence that a CGA detects many problems missed by a regular assessment in general geriatric and in cancer patients. There is also strong evidence that a CGA improves function and reduces hospitalization in the elderly. There is heterogeneous evidence that it improves survival and that it is cost-effective. A CGA, with or without screening, and with follow-up, should be used in older cancer patients, in order to detect unaddressed problems, improve their functional status, and possibly their survival.\(^3\) (abstract)

Although their article contains the International Society of Geriatric Oncology’s (SIOG) “recommendations for the use of CGA in research and clinical care for older cancer patients” they note: “The task force cannot recommend any specific tool or approach above others at this point…”\(^3\)(abstract).

Other authors recommending the use of the CGA are Friedrich et al.\(^4\); Repetto and Comandini\(^5\); Repetto et al.\(^6\); Repetto et al.\(^7\), Reuben\(^8\); Wedding et al.\(^9\); and Wieland and Hirth\(^10\) (“Since age itself is not predictive of outcome in an elderly cancer patient, the CGA helps to distinguish between elderly patients who should be treated with intent to cure and those who will benefit from clinical oncologic and geriatric comanagement.”\(^10\) (abstract)

The Comprehensive Geriatric Assessment is itself not a formalized protocol or tool but more of an interdisciplinary prototype of ideal geriatric care whose actuality is very much dependent of the specifics of local resources.

The composition of the CGA team has traditionally included core and extended team members. Core members evaluate all patients; whereas extended team members are enlisted to evaluate patients on an "as-needed" basis. Most frequently, the core team consists of a physician (usually a geriatrician), a nurse (nurse practitioner or nurse clinical specialist), and a social worker.

The extended members of the team include a variety of rehabilitation therapists (e.g., physical, occupational, speech therapy), psychologists or psychiatrists, dietitians, pharmacists, and other health professionals (e.g., dentists, podiatrists). Frequently, the constituency of the team is determined more by the local availability of professionals with interest in CGA than by programmatic needs.\(^11\)

In the process of a CGA, the following domains are evaluated:

- Functional status
- Comorbid medical conditions
Will my elderly patient be able to tolerate chemotherapy?

Cognition
Psychological status
Social functioning and support
Socioeconomic issues
Medication review
Nutritional status

Although Reuben discusses the evolving nature of the CGA—including the fact that many individual clinicians are adapting its initial multidisciplinary model to their individual practices, the CGA as a whole remains too time consuming and unwieldy to be a practical tool for oncologists.

The standard assessment performed by a geriatrician, requiring up to two hours, may not address the needs of the oncologist, who requires a brief assessment to specifically identify the seemingly fit-appearing older individual whose limited function reserve places him/her at risk for toxicities and, perhaps, poorer outcomes overall.13 (p.2003)

Hurria et al. proceeded, therefore, to conduct a pilot study whose goals “were to develop a brief yet comprehensive cancer-specific geriatric assessment measure (CSGA) that would be primarily self-administered and to establish its feasibility in an oncology practice.” They created an instrument that measured the following: Functional Status (using the Activities of Daily Living … subscale of the Medical Outcomes Study [MOS] Physical Health, the Karnofsky Physician-Rated Performance Rating Scale, the Karnofsky Self-Reported Performance Rating scale, the Timed Up and Go, and the Number of falls in the last 6 months); Comorbidity (using the OARS Health Section); Cognition (using the Blessed Orientation-Memory-Concentration test); Psychologic (using the Hospital Anxiety and Depression Scale); Social Functioning (using the Medical Outcomes Study Social Activity Limitations Measure); Social Support (using Medical Outcomes Study Social Support Survey: Emotional/Information and Tangible subscales and the Seeman and Berkman Social Ties measure); and Nutrition (using Body Mass Index and percent unintentional weight loss in the last 6 months).13

The authors found that “the mean time to completion of the geriatric assessment was 27 minutes” which included “patient time to complete the self-administered portion of the assessment and the interviewer time to administer the BOMC test and Timed Up and Go, and to rate the patient’s KPS.” 13(p.2002)

In a second report based on the same pilot study, Hurria et al. note that the measures used (represented in the above paragraph in italics) were “chosen based on their validity, reliability, brevity, adaptability for self-administration, and ability to prognosticate risk for morbidity or mortality in an older patient.”14 Their “eventual goal is to determine if this geriatric assessment measure can identify factors independent of age that predict cancer treatment morbidity and mortality and result in rational interventions to optimize oncologic care.” 14 (abstract)

Hurria et al. acknowledged the limitations to their preliminary studies including a primarily homogenous study sample (mostly white; well educated; from a single tertiary care center; already receiving chemo—therefore possibly pre-selected to be healthier and more capable of doing the self-administered part of the test—as well as presenting an inherently biased sample). Nonetheless, they consider that:

In comparison to the geriatric assessment performed by these other investigators, the geriatric assessment proposed in our study includes a more comprehensive assessment of physical functioning (including a performance-based functional status measure and questions regarding higher-order physical functioning and the ability to perform more rigorous physical activities) and assessment of cognition (not included in the assessment by Ingram et al.) each of these domains is critical in assessing older patients with cancer. Our goal for future studies is to determine whether these measures can be used to predict an older patient’s ability to tolerate and comply with a rigorous treatment course.13 (pp.2003-4)

In summary, Dr. Chambers’ question appears to be one that is very much on the mind of many oncologists and geriatricians. Using the concept of a Comprehensive Geriatric Assessment as a starting point, several investigators are actively studying improved protocols for a screening tool that would be logistically feasible in the context of a busy oncology practice.

References