The Case for Geriatric Oncology

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This issue of *Oncology Spectrums* explores the implications of the association of cancer and aging, an increasingly common event in the Western world.[1] Currently, 50% of all cancers occur in persons aged 65 and older, and by the year 2030 this proportion is expected to rise to 60%. Three concurrent factors explain the epidemic of cancer among the elderly: (1) prolonged life-expectancy has led to an expansion of the elderly population, especially those of age 85 and older; (2) reduced natality rate has resulted in progressive shrinkage of the younger population; and (3) the incidence and the prevalence of cancer increase with age.

This issue of *Oncology Spectrums* intends to provide a timely response to a specific demographic imperative. As the majority of clinical studies have been focused on younger cancer patients,[2] it is legitimate to ask whether the same principles may apply to older individuals, and whether older individuals receive adequate cancer care. Until recently, cancer-related mortality has been declining among patients younger than 55 but increasing among older patients.[1] This trend appears to have reversed in the last decade, indicating that cancer prevention and cancer care are effective in older individuals (see La Vecchia et al in this issue). However, despite improved outcome of cancer in the aged, a number of concerns persist. Do older patients have adequate access to care? Are oncologists comfortable in dealing with older cancer patients? Is the management of cancer in older individuals going to bankrupt Medicare?

To address these concerns, the main thrust of this issue of *Oncology Spectrums* is a cost-effective approach to cancer in the elderly, capable to enhance therapeutic success and minimize toxicity, to minimize cost and enhance quality of care. The main conclusion of this issue is that the older cancer patient requires individualized management based on estimates of life-expectancy, treatment tolerance, and expected clinical benefits. The basis of these estimates is a comprehensive evaluation able to account for the diversity of the older population in terms of function, comorbidity, cognition, emotions, social support and resources, as outlined by Extermann (this issue). Individualized management is the key to cancer control in the aged and to the prevention of unwanted therapeutic complications.[3] This entails proper patient selection and management of conditions that may interfere with cancer treatment, as well as familiarity with common clinical problems of aging that may be exacerbated by cancer and its treatment. For example, although every oncologist should be skilled in treating the nausea and vomiting that can result from chemotherapy treatment, the oncologist managing the older patient should also be aware that intravascular volume depletion from nausea and vomiting may trigger a chain of events leading to postural hypotension, falls, and hip fracture, a complication preventable with proper fluid balance and home care. Provision of proper home care to such patients may cost a fraction of what it costs to manage a hip fracture in the hospital.

The conclusion that individualized management based on geriatric assessment is a pressing need in geriatric oncology challenges the common tenet that, because half of cancer patients are older than 65, the majority of oncologists already practicing geriatric oncology. The claim that all oncologists are already geriatric oncologists begs the question of what aging means and ignores the tremendous advances in understanding the biology and the clinical aspects of aging during the last 20 years.

Aging may be construed as a progressive loss in the functional reserve of multiple organ systems, often associated with cognitive decline and disruption of the informal social network, a combination of events that may lead to functional dependence and disability.[3] Basic management guidelines for the older person may stem from these general characteristics of aging. The National Cancer Center Network (NCCN) has been the first organization in the United States to issue general guidelines for the management of the older cancer patient.[4] These include:

- Prophylactic use of hematopoietic growth factors in persons aged 70 and older receiving moderately cytotoxic chemotherapy, such as the cyclophosphamide/doxorubicin/vincristine/prednisone combination (CHOP), because the risk of neutropenia , neutropenic infections and even death, increases beyond this age. The chairman of the American Society of Clinical Oncology guidelines committee for hematopoietic growth factors, concurred with a letter to this recommendation.[5]
- Adjustment of the doses of renally excreted agents to the glomerular filtration rate of persons over 65, because kidney function almost universally declines with age.[6]
- Maintenance of hemoglobin concentrations 12 gm/dl, to avoid the complications of anemia, which in the elderly involve risk of functional dependence and of therapeutic toxicity.[7]
- Use of some form of geriatric assessment in persons aged 70 and older, because the prevalence of functional dependence, comorbidity, dementia and depression increases beyond this age and may compromise the management of cancer.[8]

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These simple provisions are essential, but not sufficient, to provide safe care to the older cancer patient. They must be seen as a frame of reference capable to accommodate emerging knowledge. For example, the guidelines make no mention of chemotherapeutic agents of choice in older individuals. In this issue of *Oncology Spectrums*, Skirvin et al provide an important review of drugs developed during the last decade that may be safely employed even in patients with seriously compromised functional reserve. These include taxanes and anthracyclines in low weekly doses, gemcitabine, navelbine, and capecitabine. The latter is of special interest because it is administered orally, which allows more dose flexibility and reduces the number of visits to the doctor's office. In addition, capecitabine is devoid of the most common toxicities of other fluorinated pyrimidines including mucositis and neutropenia. At the same time, new hormonal agents have emerged with improved tolerance profile, including new aromatase inhibitors and especially examesthane, while translational research has generated medications targeted on the tumor while sparing normal tissues. These include monoclonal antibodies, farnesyl-transferase and tyrosine kinase inhibitors, and apoptosis-inducing drugs. Thanks to these advances, even the oldest and frailest patients may receive important clinical benefits from cancer treatment, as highlighted by Geloo and Ershler in this issue.

The guidelines recommend some form of geriatric assessment, but each practitioner is responsible for implementing this recommendation to its full implications for individualized management. This requires evaluation of the balance between the risks and benefits in each situation, management of conditions that may interfere with cancer treatment, including comorbidity, depression, malnutrition, and inadequate social support, and management of the caregiver, who is an essential player in the health maintenance of the older individual.[9] In the geriatric jargon, the caregiver is a layperson responsible of total patient management and generally involves an older spouse with health problems of his/her own, or an adult child who needs to divide his/her attention among ailing parents, his/her job, and his/her own family.[9] To fully achieve these goals—a balance between risks and benefits, management of comorbid conditions, and management of the caregiver—the oncologist must be able to interpret the comprehensive geriatric assessment, be familiar with common conditions of age, such as cognitive dysfunctions, geriatric syndromes, falls, incontinence, osteoporosis, and delirium, and be knowledgeable of the interventions that may ameliorate these conditions as well as of the resources available to institute these interventions.

A discussion of cost is germane to the management of the older person with cancer. The cost is generally higher than in the younger person, due to the need for a more global approach to treatment, and to increased risk of therapeutic complications. At the same time, the cost-effectiveness of cancer management may be lower than in the young, in view of more limited life-expectancy.[8] Given limited healthcare resources, efforts to minimize cost are warranted as long as two conditions are met: (1) that the treatment outcome is not compromised; and (2) that the global cost of managing the older person is appreciated. For example, prevention of anemia with erythropoietin may represent an overall savings if the medication prevents fatigue and functional dependence.[7] Likewise, the cost of an initial geriatric assessment may be more than offset by the savings related to avoidance of treatment complications.

Heeding these principles, Lyman et al (this issue) demonstrate how the use of hematopoietic growth factors may not only save lives, but also reduce the cost of managing older patients with cancer.

Finally, it is important to recognize that the clinical issues on which we focus in this issue are interwoven with a host of other issues including:

- Basic and clinical research. These involve: biologic interactions of cancer and age; laboratory and functional assessment of age; adoption of a common language for classifying older patients involved in clinical trials; decision analysis and cost analysis; value of specific interventions, such as adjuvant chemotherapy of breast cancer in women over 70; cancer prevention.
- Professional and public education. In particular, it is necessary to overcome ideological barriers such as ageism, and familiarize health professionals with the clinical meaning of age. We must also provide recognition and support to the caregiver of the older person.
- Political and social intervention. Adequate resources need to be devoted to the management of the older person, including social and economical support. In particular, the policy preventing reimbursement of geriatric assessment is miserly and should be reversed with all determined speed.

Geriatric oncology represents in part the future of oncology. It is an exciting, far reaching and pervasive field with new and unique opportunities. I am very honored and humbled for having been selected to introduce this field to our professional readership. **OS**

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