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Time to Stop Saying Geriatric Assessment Is Too Time Consuming

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Aging makes us increasingly unique. A group of older patients with cancer of identical chronologic age will demonstrate great heterogeneity with regard to vitality, comorbidity, functional status, physiologic reserves, and psychosocial functioning.[1,2] Thus, age alone is an insufficient surrogate for biologic aging. Similarly, commonly used unidimensional measures, such as performance status or the American Society of Anesthesiologists classification, cannot fully do justice to this heterogeneity.[3] Despite accumulating evidence regarding the value of geriatric assessment (GA) to encompass the diversity of older patients, it seems almost requisite in literature and presentations on GA in cancer care to state that it is too time consuming to implement in daily oncology practice.[4-7] In our opinion, this complaint is ill founded and should be retired.

With the imminent aging of Western societies, the number of older patients with cancer is rapidly increasing.[8] In fact, almost 70% of the patients sitting in front of you, as a cancer specialist, will be age 65 years or older by the year 2030.[9] This demographic shift mandates a closer look at aging-related issues that older patients face, which persist and coexist with a new cancer diagnosis. In fact, such issues may be exacerbated by cancer symptoms and treatment—for example, increased risk of falls because of chemotherapy-related neuropathy in an older adult with limited mobility.[10-12] As their patient population ages, cancer specialists increasingly have to make complex treatment decisions in older patients with comorbidities and functional impairment. This requires some familiarity and experience with geriatric care components. To address this demographic development, research on the incorporation of geriatric concepts into oncologic care began more than 20 years ago.[13] Cancer specialists adopted the geriatric concept of frailty[14]—a state of decreased physiologic reserve caused by the accumulation of aging processes across multiple organ systems, which affects the patient's resistance to stressors such as cancer or cancer therapy. In addition, the GA was adopted for assessing the presence of impairments (eg, in cognition or mobility) and overall health status. Multiple resources now exist for oncologists wanting to implement a GA in clinical practice, such as the Web sites of the International Society of Geriatric Oncology,[15] American Society of Clinical Oncology,[16] Cancer and Aging Research Group,[17] and Moffitt Cancer Center,[18] as well as National Comprehensive Cancer Network older adult oncology guidelines.[19]

In geriatric medicine, comprehensive GA (CGA) is "a multi-dimensional, interdisciplinary, diagnostic process to identify care needs, plan care, and improve outcomes of frail older people."[20(p474)] CGA encompasses multiple domains beyond a traditional medical assessment, including functional status, cognition, psychological health, and socioenvironmental factors. Tailored interventions are subsequently recommended, such as nutritional supplements or home nursing to help with medications. Furthermore, an important aspect of CGA is to discuss the patient's preferences and treatment goals so that the care plan reflects these crucial aspects of care. Although it is a time-consuming process, CGA has been proven to decrease mortality and care dependence, and is the essence of geriatric medicine.[21] In geriatric oncology, a modified version of CGA, simply named GA, has been proposed and studied extensively in various tumor types and treatment settings.[22] The multidimensional character has been maintained, but with a simplified process, focusing primarily on identifying health issues that may affect treatment tolerance and prognosis.

In this form of GA, many of the data are collected by patient or caregiver self-report, sometimes electronically. Only certain components, including the cognitive screen and physical performance tests (eg, Timed Up and Go test[23]), require any health care provider time. Typically, such assessments can be performed by a nurse. Estimates of the total time required are 22 to 27 minutes, with 15 to 23 minutes being completed by the patient and caregiver and only 5 to 6 minutes by the health care provider.[24-28] Provided that an intervention protocol is in place, there are no differences between assessments performed by a geriatrician or a trained health care worker in the proportion of patients for whom oncologic treatment decisions are altered, nor are there differences in the use of nononcologic interventions to optimize health status.[29] Although completion of a series of screening instruments does not allow for actual clinical diagnosis of an underlying illness, such as depression or dementia,[30] these instruments are quick and valid methods for identifying areas that may be impaired and acquiring an overall impression of a patient's health status.

What do the data show about the utility of GA in oncology? Even in patients with a good performance status, GA can identify multiple geriatric impairments.[31,32] Additionally, among older patients beginning a course of chemotherapy, GA predicts toxicity. In the Cancer and Aging Research Group model, which includes GA parameters such as mobility and falls, the lowest-risk group had a 25% rate of grade 3 to 5 toxicity, whereas the highest-risk group had an 89% risk of grade 3 to 5 toxicity. The area under the

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curve of the model was 0.72.[33] In the Chemotherapy Risk Assessment for High Age Patients model, which also included several geriatric domains, separate models for grade ≥ 3 hematologic and nonhematologic toxicities were developed, with C statistics of 0.76 and 0.66, respectively.[34]

GA predicts 6-month mortality in older adults receiving chemotherapy, with at-risk or poor nutritional status and poor physical performance on the Timed Up and Go test each more than doubling the risk of early death (odds ratio, 2.77 and 2.55, respectively).[35] GA is also predictive of postoperative morbidity in older adults with cancer undergoing surgery, where increasing age alone does not seem to be associated with complications in the elective setting. In a study of more than 400 patients with cancer, poorer functional status was associated with a 36% increased risk of complications after surgery, and being dependent in daily activities doubled the risk of prolonged hospitalization.[36] In a cohort of older patients with colorectal cancer, frail patients had a 5-year survival of 24%, compared with 66% for nonfrail patients, and being frail was a more important risk factor for death than stage III disease, whereas age was not associated with survival.[37] In addition, several studies have shown that GA identifies previously unrecognized vulnerabilities that affect cancer specialists' decision making. In a systematic review of studies examining the impact of geriatric evaluation on treatment decisions, the median frequency with which the treatment plan was altered after GA was 39%.[29] Most recently, the first study was published demonstrating improved outcome when treatment allocation was based on outcome of GA; in a randomized trial of patients with advanced non–small-cell lung cancer, GA-stratified treatment resulted in lower toxicity with similar survival.[5] In the United States, a large ongoing community-based randomized trial will examine whether providing oncologists with their patients' GA data and relevant recommendations will affect treatment toxicity and quality of life (ClinicalTrials.gov identifier NCT02054741).

Traditional treatment paradigms focus on objectively measured factors such as tumor characteristics, computed tomography (CT) scans, biochemistry, and adherence to clinical guidelines that are on the basis of studies performed in cohorts of selected, often younger patients.[38] If this focus becomes too dominant, we may forget to include patient preferences and perceptions in the decision-making process. Shared decision making can be facilitated by GA, because finding common ground in the patient's and physician's perceptions of the level of fitness and ability to tolerate treatment creates a good starting point for discussing treatment options. If an older patient is insistent on receiving therapy for cancer despite a high risk, GA may be particularly useful for the physician, because it provides a detailed explanation across all the domains of GA of why the risk is so high. In older patients, the best treatment option will depend just as much on subjective factors like the individual patient's preferences and priorities. Most treatment decisions involve tradeoffs (eg, accepting adverse effects of chemotherapy to increase the length of life). Studies have shown that functional and cognitive outcomes after treatment, such as the ability to live independently, may be more important than survival for older patients.[39,40] Nevertheless, few studies in oncology have assessed these end points, focusing instead on what the physician finds most important: treatment toxicities, recurrence, and survival. However, when asking patient representatives about their top priorities for cancer research, the impact that cancer has on life, specifically psychological consequences and functioning, has been identified as the most important aspect.[41] Another example that illustrates that physicians' and patients' perceptions deviate is that patient-reported toxicities are under-reported by physicians, even when collected within randomized trials.[42] This is disturbing, because in such cases, the patient who is experiencing the toxicity has the correct answer.

Thus, we may need to take one step back and think again about what our job is: to offer the patient the best treatment on the basis of his or her preferences, values, and goals, as well as individualized risks and benefits, informed by GA. Taking a closer look at the patient is not merely time-consuming noise that interferes with an appropriate oncologic workup. This is especially true if the patient is older and has comorbidities, multiple medications, and cognitive impairment—factors that will influence every step of the treatment trajectory. Because the issues uncovered by GA can influence decision making by predicting survival as well as the likelihood of toxicity and other treatment-related complications, we believe it is unethical not to take the time to assess these aspects before treatment decisions are made.[5,29,43-45] In addition to the harm caused to the individual patient, any cancer specialist will be aware of the time and resources required for dealing with treatment-related complications. In fact, the time required for GA, which may prevent complications by individualized toxicity prediction, is just a fraction of the cost of actual toxicity and complications.

Ultimately, time is money, including in clinical practice. The amount spent on staging and exploring disease characteristics is rapidly increasing. As summarized in Table 1, the relative cost of GA—expressed in terms of a nurse's salary for 1 hour—is small compared with many diagnostic procedures that are routinely used in oncologic workup. For example, a routine chest x-ray costs 2.5

Table 1. Comparative Cost of Nurse's Salary Compared With That of Other Diagnostic Instruments Used in Oncologic Workup

Diagnostic Instrument	Cost ($)
Nurse's salary for 1 hour*	28
Complete blood count	17
Carcinoembryonic antigen	50
Chest x-ray	67
Bilateral screening mammography	321
Abdominal or chest CT scan	640
MRI pelvis	739
Liver biopsy	879
Whole-body PET-CT	1,788
Colonoscopy with biopsy	2,187
Breast cancer genomic testing (Oncotype†)‡	3,416
Liquid biopsy (Guardant360§)‖	5,800

NOTE. Data adapted from Healthcare Bluebook,[46] which uses a nationwide database of medical payment data to create transparency in pricing for medical procedures. Within the range of pricings, Healthcare Bluebook "reasonable amount" data are presented.

Abbreviations: CT, computer tomography; MRI, magnetic resonance imaging; PET, positron emission tomography.

*Mean salary for a registered nurse in the United States according to PayScale.[47]

†Genomic Health (Redwood City, CA).

‡Reported Medicare reimbursement rate in 2016.[48]

§Guardant Health (Redwood City, CA).

‖On the basis of article by Mukherjee.[49]

times as much; CT of the chest costs more than 20 times as much. Whole-body positron emission tomography–CT is nearly 65 times as expensive. Other assessments aimed at tailoring treatment, such as genomic testing, can cost more than 100 times more. Cost of health care is a complex issue. The time invested for GA in one cancer center may not necessarily result in cost savings for the hospital or cancer center director who makes the investment, because complications of cancer treatment are often managed in other hospitals, such as community hospitals. For this reason, we believe policymakers will play a key role in ensuring the routine implementation of GA in cancer care. Additionally, future studies in geriatric oncology should systematically assess the cost effectiveness of GA, both for the individual patient as well as on a societal level.

In conclusion, GA in the older patient with cancer can aid the physician in several ways: identifying impairments, clarifying patient priorities, predicting survival and toxicity risk, establishing a pretreatment baseline, and developing interventions. All these factors may influence treatment decisions for both the patient and medical team. Why is it deemed infeasible to take the extra time required for GA, when the cost of an additional imaging study or treatment or of dealing with toxicity is seldom the subject of debate? This results in care that is not tailored to the needs of older patients, potentially leading to unnecessary procedures or treatments or avoidable complications. Thus, it is in the interest of all stakeholders—patients, medical specialists, insurance companies, and policymakers—to demand an appropriate assessment of older patients with cancer.

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

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