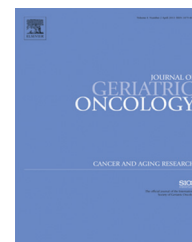


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Editorial

Recent trends in surgical research of cancer treatment in the elderly, with a primary focus on lung cancer: Presentation at the 2015 annual meeting of SIOG

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technology leading to minimally invasive surgical therapies and non-surgical equivalent therapies are rapidly expanding. Furthermore, the abandonment of a paternalistic model of medicine in favor of shared decision-making brings choices to the individual patient.

These recent changes led to the development of a multitude of guidelines and task forces. We are proud to say that the International Society of Geriatric Oncology (SIOG) has organized a large number of blue ribbon task forces which have made significant contributions with guidelines for geriatric patients facing choices in cancer therapy.

The past 10 years have seen significant accomplishments for elderly patients. These include new cancer screening guidelines, especially the initiation of lung cancer screening with low-dose CT scans. New outcomes research documents dramatic drops in surgical mortality not just in academic centers, but in local community hospitals as well.

Research in surgery for elderly patients continues to be a hot topic. A PubMed search that combines “surgery” with “elderly” returns over 280,000 citations. Examining the publications of the last 10 years reveals several identifiable pathways: screening for disease that can be successfully treated, integration of operative and non-operative therapies that are changing the indications for surgery, the use of prehabilitation to allow more borderline frail patients to be treated surgically, the use of rehabilitation to facilitate rapid and complete recovery, and continued identification and intervention to prevent and treat common morbidities with a special focus on delirium in the past few years. New areas of surgical research include research on team building in the OR and ICU.

1. Introduction

Surgical research about the geriatric patient with cancer has matured over the past 2 decades. Twenty to thirty years ago, most surgical research was limited to single institution small retrospective studies. These studies generally concluded that surgery could be safely performed by experienced surgeons on carefully selected geriatric patients, without critically examining the method of selection. The reported morbidity and mortality rates of this era were felt to be satisfactory, with no real push to improve outcomes in this vulnerable population.

About 15 years ago, a new line of surgical research began to focus on ways to properly select the appropriate therapy for the individual geriatric patient. This research is multi-faceted but based on the simple idea that chronologic age does not equal to physiologic age. Studies are now aimed at developing geriatric assessments and prospective frailty scores to identify the occult frail patient. Physiologic tests of cardiopulmonary reserve and screening algorithms are being developed to improve surgical selection. New

2. Screening

The United States Preventive Services Task Force (USPSTF) modified several screening recommendations for prostate, breast and colon cancers.

The USPSTF recommends against using Prostate Specific Antigen (PSA) to screen for prostate cancer. New recommendations for prostate cancer screening are currently being drafted and will be open within the next year for public comment. The USPSTF refined breast cancer screening recommendations to the use of mammography every 2 years between the ages of 50 to 74 years. They specifically find inadequate evidence to justify routine mammography use over the age of 75 years. For colon cancer, new recommendations are open for public comment on the USPSTF website [1]. Screening for colon cancer is viewed as age dependent. The USPSTF recommends screening for colorectal cancer using fecal occult blood testing, sigmoidoscopy, or colonoscopy in adults, beginning at age 50 years and continuing until age 75 years with a recommendation level of "A." The USPSTF recommends screening for colorectal cancer in adults 76 to 85 years of age be justified in individual patients [1].

The biggest change in screening for surgical disease came in the field of lung cancer. On December 31, 2014 the USPSTF gave a "B" recommendation for low-dose CT (LDCT) screening for patients between the ages of 54 and 80 with a 30 pack year smoking history and who had smoked within the past 15 years. Under United States law, private insurance coverage provided this benefit, but the Center for Medicare and Medicaid Services (CMS) was free to make its own evaluation. On February 6th, 2015 the CMS agreed to provide Medicare beneficiaries between 55 and 77 years an annual LDCT screening for those who currently smoke or have quit within the past 15 years, have smoked the equivalent of one pack of cigarettes a day for 30 years, and have a physician or other health care professional's written order requesting the test. This is a critical policy change that will capture elderly patients who rely on Medicare and Medicaid as their only form of health insurance [1].

Lung cancer is a disease of the elderly, and thus the benefit of screening has the potential to be more pronounced in the geriatric population (Table 1) [2]. This same elderly population, however, has been traditionally viewed at increased operative risk as a function of age. Screening is only appropriate if safe treatment can be offered.

3. Lowering of Community Surgical Mortality

In hearings before CMS, a specific concern was raised that the low mortality of 1% in the computed tomography (CT) arm seen in the National Lung Screening Trial (NLST) was not reproducible [3]. Specifically, the NLST was run in large academic centers, and many of them were pioneering sites of minimally-invasive lung surgery [4]. Screening will occur in all hospitals, and it was unclear that low mortality could be expected at the community hospital level. This misconception highlights the fact that surgical research has dramatically reduced expected operative mortality in both community and academic centers.

New data in the past year has convincingly shown that mortality rates in the community hospital setting have improved, providing safe procedures at lower cost and closer to home for many patients. Operative mortality following lobectomy for lung cancer was found to increase with age in the landmark paper from the Lung Cancer Study Group in 1983 [5]. The postoperative mortality rate for patients 70 years or older was 7.3% following lobectomy. A recent review by Bravo et al. [6] documents a steady decline in operative mortality rates for lobectomy over the past 25 years for all age groups [see Table 2]. Most of these studies are from individual teaching hospitals, while others are multi-institutional trials within academic centers.

Furthermore, the decline in operative mortality is particularly striking in the geriatric population. Analysis of the American College of Surgeons-National Quality Improvement Program (ACS-NSQIP 2005–2012) data demonstrated that current multi-institutional 30-day operative mortality after lobectomy for lung cancer in 2690 patients age 65–80 years is 2.34%. Further analysis showed a significant difference on this rate depending on surgical technique and that the use of VATS lobectomy decreases mortality to 1.19%, while the use of an open technique still decreased mortality from 7.3% to 3.13% over the past 30 years [see Table 2].

These results suggest that high-quality thoracic surgery is no longer limited to large academic centers, but now has disseminated throughout the United States and across a broad range of

Table 1 – Age-specific incidence rates.
Adapted from reference [2].

Age at diagnosis	Non small cell lung cancer			Breast cancer (invasive)			Colon cancer			Prostate cancer		
	All Races									Males		
	Both	Males	Females	Both	Males	Females	Both	Males	Females	All Races	White	Black
55–59	65.4	73.5	57.6	136.5	1.7	263.4	42.8	48.7	37.3	285.0	264.9	506.3
60–64	108.3	126.2	92.0	178.5	2.8	339.7	62.5	72.7	53.2	486.3	459.8	810.7
65–69	186.9	215.1	161.9	227.1	4.9	424.2	92.6	107.7	79.2	746.8	710.9	1153.1
70–74	260.6	304.1	224.2	246.0	5.9	447.0	130.6	148.9	115.4	782.8	746.2	1113.4
75–79	314.4	381.1	263.2	258.1	6.8	451.3	167.9	184.8	155.0	686.3	648.8	942.1
80–84	304.7	393.9	244.5	252.9	7.8	418.4	212.2	229.7	200.4	504.7	478.2	684.2
85+	181.7	270.2	136.8	235.2	8.3	350.1	240.9	264.0	229.2	418.4	398.0	628.4

Rates are per 100,000 and are age-adjusted to the 2000 US Std Population.

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