



Adjuvant and neoadjuvant treatment for rectal cancer, colon cancer, and non-small-cell lung cancer in older patients

R. Rahal MBA, G. Porter MD,† T. Forte MSc,* S. Fung MSc,* and H. Bryant MD PhD*‡ in collaboration with the System Performance Steering Committee and the Technical Working Group*

INTRODUCTION

Evidence-based treatment guidelines exist to improve quality of care for patients and are based on randomized trials that show evidence of benefit. In making treatment decisions, that evidence has to be balanced with the specific circumstances and individual choices of patients and their families. That balance is particularly relevant for older patients who are variably represented in clinical trials and for whom the benefits of adjuvant or neoadjuvant chemotherapy and radiation therapy might come with increased toxicity, specific quality-of-life implications, and competing health issues. In the present article, we examined the impact of patient age on rates of recommended treatment in three evidence-based guidelines: neoadjuvant radiation therapy for rectal cancer, adjuvant chemotherapy for colon cancer, and adjuvant chemotherapy for non-small-cell lung cancer. The objective was to assess the extent to which older patients, relative to younger patients, receive guideline-recommended therapies.

METHODS

To assess concordance with the selected treatment guidelines, treatment data were collected from participating provincial cancer agencies based on standard specifications and definitions. Treatment rates were calculated by patient-age subgroup (18–59 years, 60–69 years, 70–79 years, and 80+ years) and were based on patients diagnosed in the participating province in each of the years 2007, 2008, 2009, and 2010. Depending on treatment indicator, data from between 3 and 5 provinces were available. The three indicators examined were

- the percentage of stage II and III rectal cancer patients receiving preoperative radiation therapy (which has been shown to improve outcomes and local control for patients with stage II or III rectal cancer¹).

- the percentage of stage III colon cancer patients receiving adjuvant chemotherapy after surgery as recommended in treatment guidelines based on evidence of improved outcomes².
- the percentage of stage II or IIIA non-small-cell lung cancer patients receiving chemotherapy after surgery as recommended in treatment guidelines³. For this treatment indicator, a working group convened by the Canadian Partnership Against Cancer recommended a performance target of 45% of patients between the ages of 70 and 79 years receiving adjuvant chemotherapy⁴.

RESULTS

In all years examined, the proportion of patients diagnosed with stage II or III rectal cancer receiving preoperative radiation therapy was lowest in the oldest compared with the youngest age group. In the most recent year examined, 49.8% of patients less than 60 years of age received neoadjuvant radiation therapy. The proportion of patients 70–79 years of age receiving the same treatment was 35.8%, and in patients 80 years of age and older, it was 20%. A modest increase in use of neoadjuvant radiotherapy for patients in the oldest age group was seen in more recent years (Figure 1).

Among patients diagnosed with stage III colon cancer, the data show a decline by age group in the proportion of patients receiving adjuvant chemotherapy after surgery, with treatment rates being lower for older than for younger patients. In 2010, 85.7% of patients less than 60 years of age diagnosed with stage III colon cancer received adjuvant chemotherapy after surgery; adjuvant chemotherapy was given to 17.9% of patients 80 years of age and older (Figure 2).

Similarly, the proportion of stage II or IIIA non-small-cell lung cancer patients receiving postoperative chemotherapy declined with age, from 55.3% of patients less than 60 years of age to 31.7% of patients 70–79 years of age. Among patients 80 years of age

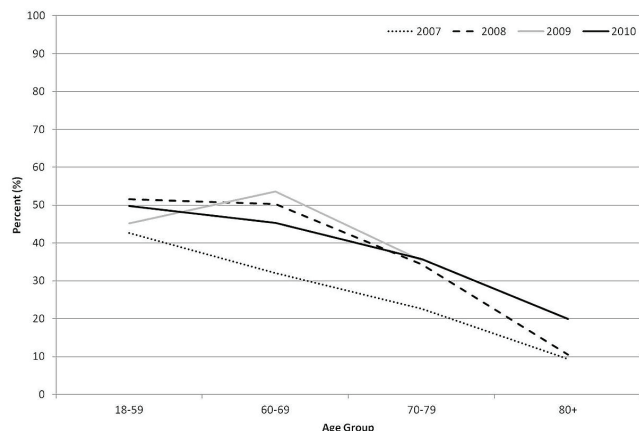


FIGURE 1 Percentage of stage II or III rectal cancer patients who received radiation therapy before surgery, by patient age group, for patients diagnosed from 2007 to 2010. Data originate from Alberta, Manitoba, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador (provinces that submitted comparable data for all years), and include radiation therapy that began up to 120 days before surgery. Data source: provincial cancer agencies.

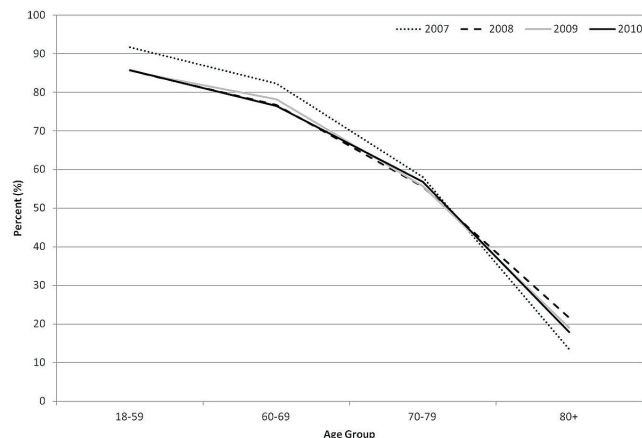


FIGURE 2 Percentage of stage III colon cancer patients receiving chemotherapy after surgical resection, by patient age group, for patients diagnosed from 2007 to 2010. Data originate from Alberta, Manitoba, and Newfoundland and Labrador (provinces that submitted comparable data for all years), and include chemotherapy started within 120 days after surgery. Data source: provincial cancer agencies.

and older, no patients received postoperative chemotherapy (Figure 3).

DISCUSSION

The data show that, relative to their younger counterparts, older patients diagnosed with rectal, colon, or non-small-cell lung cancer are less likely to receive guideline-recommended therapies. Decisions about cancer treatment in the older patients might be influenced by a number of factors,

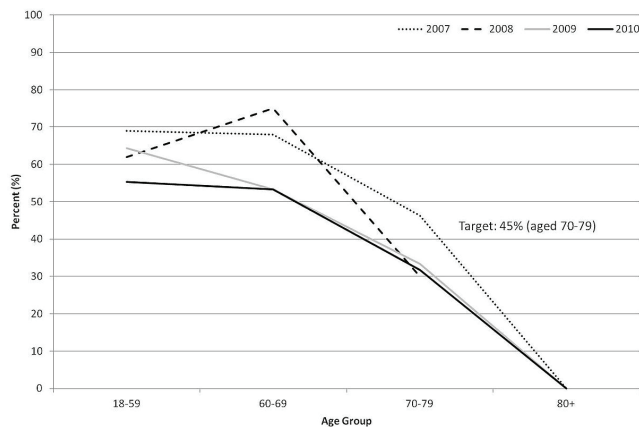


FIGURE 3 Percentage of stage II or IIIA non-small-cell lung cancer patients receiving chemotherapy after surgical resection, by patient age group, for patients diagnosed from 2007 to 2010. Data suppressed because of small numbers for the 80 years and older age group in 2008. Data originate from Alberta, Manitoba, and Saskatchewan (provinces that submitted comparable data for all years), and include chemotherapy started within 120 days after surgery. Data source: provincial cancer agencies.

including pre-existing health problems (that is, comorbidities) and other conditions that might cause the potential risks of radiotherapy and chemotherapy to outweigh the benefits of treatment. Although elderly patients have historically been poorly represented in randomized trials examining adjuvant and neoadjuvant cancer therapies, recent studies of such therapies in older patients continue to report positive outcomes. Notably, studies examining adjuvant chemotherapy for colon cancer demonstrated survival benefits for patients 75 years of age and older⁵, and studies examining non-small-cell lung cancer showed that patients 65 years of age and older receiving chemotherapy can experience improved survival with acceptable toxicity⁶. Similarly, older patients with stage II or III rectal cancer who are fit enough for surgery are generally fit enough for preoperative neoadjuvant radiation therapy, and studies have demonstrated tolerability and response rates similar to those seen in younger patients⁷.

Although studies have shown persistent benefit from adjuvant therapies in older patient groups, the goal of a high-quality patient-centred cancer care system is to ensure that patients and families are provided with objective and clear information on the risks and benefits of treatment alternatives so that they can make the decisions that are right for them. This brief report highlights the lesser use of evidence-based cancer therapies as patient age increases, suggesting that further work is needed to better understand that drop-off and to potentially optimize cancer therapy for elderly Canadians.

The 2014 Cancer System Performance Report can be viewed at <http://www.systemperformance.ca>.

CONFLICT OF INTEREST DISCLOSURES

The authors have no financial conflicts of interest to declare.

REFERENCES

1. National Comprehensive Cancer Network (NCCN). *NCCN Clinical Practice Guidelines in Oncology: Rectal Cancer*. Ver. 3.2014. Fort Washington, PA: NCCN; 2014. [Current version available online at: http://www.nccn.org/professionals/physician_gls/pdf/rectal.pdf (free registration required); cited June 13, 2014]
2. National Comprehensive Cancer Network (NCCN). *NCCN Clinical Practice Guidelines in Oncology: Colon Cancer*. Ver. 3.2014. Fort Washington, PA: NCCN; 2014. [Current version available online at: http://www.nccn.org/professionals/physician_gls/pdf/colon.pdf (free registration required); cited June 13, 2014]
3. National Comprehensive Cancer Network (NCCN). *NCCN Clinical Practice Guidelines in Oncology: Non-Small Cell Lung Cancer*. Ver. 3.2014. Fort Washington, PA: NCCN; 2014. [Current version available online at: http://www.nccn.org/professionals/physician_gls/pdf/nscl.pdf (free registration required); cited June 13, 2014]
4. Canadian Partnership Against Cancer (CPAC). *The 2014 Cancer System Performance Report*. Toronto, ON: CPAC; 2014.
5. Sanoff HK, Carpenter WR, Stürmer T, *et al*. Effect of adjuvant chemotherapy on survival of patients with stage III colon cancer diagnosed after age 75 years. *J Clin Oncol* 2012;30:2624–34.
6. Pepe C, Hasan B, Winton TL, *et al*. Adjuvant vinorelbine and cisplatin in elderly patients: National Cancer Institute of Canada and Intergroup Study JBR.10. *J Clin Oncol* 2007;25:1553–61.
7. Pasetto LM, Friso ML, Pucciarelli S, *et al*. Rectal cancer neoadjuvant treatment in elderly patients. *Anticancer Res* 2006;26:3913–23.

Correspondence to: Rami Rahal, Canadian Partnership Against Cancer, 1 University Avenue, Suite 300, Toronto, Ontario M5J 2P1.

E-mail: rami.rahal@partnershipagainstcancer.ca

* Canadian Partnership Against Cancer, Toronto, ON.

† Departments of Surgery and of Community Health and Epidemiology, Dalhousie University, Halifax, NS.

‡ Departments of Community Health Sciences and of Oncology, University of Calgary, Calgary, AB.