

Delays in Lung Cancer Care

Time to Improve

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Imagine having to wait almost 2 months to begin treatment for a highly fatal disease like lung cancer. Most clinicians would find this unacceptable, but studies in diverse health care settings across different countries indicate that this is the rule and not the exception.¹ Admittedly, caring for the patient with lung cancer requires a complicated sequence of coordinated steps, and, given a choice, it is probably more important to be correct in diagnosis, staging, and treatment planning than it is to be timely. In fact, an association between timely lung cancer care and improved survival has not been demonstrated. Accordingly, some might argue that delays in care are of little consequence and that the additional emotional distress experienced by already stressed patients and family members is something that can and should be addressed by managing their expectations.

This argument might be persuasive to some, but it rests on the assumption that most or all delays in care are inevitable, when some of the known causes of delay can in fact be avoided, including initial referrals to nonrespiratory physicians and transfers between hospitals.¹ In addition, the Institute of Medicine defines high-quality health care as being not only safe and effective but also timely, patient centered, and equitable.² Finally, just because an association between timeliness and survival has not been demonstrated does not mean that one does not exist. The effect of timely care on survival obviously does not lend itself to a randomized, controlled trial, and previous observational studies have been limited by selection bias and residual confounding.

In this issue of *Journal of Thoracic Oncology*, Yorio et al.³ report the results of a retrospective cohort study that examined timeliness of care in 482 patients with stage I–III non-small cell lung cancer at hospitals affiliated with the University of Texas Southwestern Medical Center. Of note, most previous studies of timeliness were conducted in European Union member countries and Japan, and all but two previous studies of timeliness in the United States were conducted in Department of Veterans Affairs (VA) settings, limiting their potential generalizability to other U.S. health care settings where the majority of Americans with lung cancer receive their care.^{4,5}

The authors found that the interval between the first abnormal imaging test and treatment was approximately 40% longer in patients who were evaluated and managed at the public hospital in their system (median 76 days) compared with those who received care at one of the two private hospitals (median 45 days). Even more strikingly, the image to treatment interval was longer than 116 days in 25% of those treated at the public hospital, and it was longer than 78 days in 25% of those treated at the private hospitals. In a Cox proportional hazards analysis that adjusted for age, sex, race, and insurance coverage, time to treatment was associated only with hospital type. The instantaneous “risk” of receiving treatment at any time was 85% greater in patients who received care at one of the private hospitals. Perhaps not surprisingly, patients treated at the public hospital were younger, more likely to be black or Hispanic, less likely to have private insurance, and more likely to live in a neighborhood characterized by lower socioeco-

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Disclosure: Dr. Gould has grant support from the Department of Veterans Affairs Health Services Research and Development Service to study timeliness of care in lung cancer (VAHSR&DIIR 05-101-3).

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ISSN: 1556-0864/09/0411-1303

conomic status and lower rates of high school graduation. Distressingly, patients treated at the public hospital were almost 40% more likely to present with more advanced (stage III) disease. With regard to timeliness, the care delivered at the public and private hospitals was clearly not equitable in this study. Other studies in lung cancer have found racial and ethnic disparities in staging practices, treatments and outcomes, but the underlying causes are not completely understood.^{6–8} The study by Yorio et al. lends support to the hypothesis that variable access to (timely) care may be one of the mechanisms responsible for racial and ethnic disparities.

Similar to most previous studies, the authors found that timeliness was not associated with stage distribution or survival,^{9,10} but the possibility of residual confounding warrants additional emphasis. Patients with more symptomatic disease are, on average, probably more likely to receive timely care than those with fewer or less severe symptoms. If the biologic aggressiveness of disease is correlated with symptoms, as seems likely, then this could easily obscure a (negative) association between timeliness and survival. For instance, a patient who presents with symptoms and signs of spinal cord compression is not only more likely to receive prompt diagnosis and treatment than a patient with an incidentally detected malignant pulmonary nodule but also more likely to die soon. Future studies on timeliness and survival should make use of more sophisticated methods for analyzing non-experimental data, such as propensity scores and instrumental variables.

Although the study by Yorio et al. was otherwise methodologically strong and elegantly presented, limitations include the relatively small sample, possible referral center bias, uncertain generalizability to other health care settings and regions of the country, and the exclusion of patients with stage IV non-small cell lung cancer, which, at least in theory, could result in systematically excluding patients who had long delays that resulted in progression to advanced disease. Hence, future studies of timeliness should examine large, population-based samples and include patients across the full spectrum of disease stage.

Other important questions remain unanswered. Timeliness of care was vastly different at the public and private hospitals, despite the fact that the same physicians cared for

patients in both settings. What were the specific barriers to providing more timely care at the public hospital and what can be done to overcome these barriers? A qualitative study of timely care in lung cancer in VA settings identified multiple barriers, including inadequate staffing, limited availability of imaging equipment and operating room time, suboptimal coordination of care within and between facilities, institutional inertia, and patient noncompliance.¹¹ To what extent these or other factors operate in non-VA settings is an important question for future studies. More importantly, rigorously designed interventions to improve timeliness should target settings where the opportunities for improvement are greatest and the need is most urgent. All persons should have access to high-quality, timely health care, especially when facing a deadly killer like lung cancer.

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