Original Study

Physicians' Knowledge and Practice of Lung Cancer Screening: A Cross-Sectional Survey Comparing General Practitioners, Thoracic Oncologists, and Pulmonologists in France

Sébastien Couraud,[1,2] Nicolas Girard,[2,3] Sylvie Erpeldinger,[2,4] François Gueyffier,[2,5] Gilles Devouassoux,[2,6] Guy Llorca,[2,7] Pierre Jean Souquet,[1,2] on behalf of The Lyon Lung Cancer Screening Workgroup*

Abstract

Physicians' actual knowledge and practice of lung cancer screening in routine practice are poorly known. We conducted a survey in 242 French physicians. The usefulness of low-dose computed tomography was poorly known by 82% of general physicians compared with 19% of thoracic oncologists and 48% of pulmonologists. However, approximately one third of them routinely propose a screening test, stressing the need for better education on this topic.

Background: Screening for lung cancer by low-dose computed tomography scan (LDCTS) has been demonstrated to reduce lung cancer–specific and overall mortality rates in high-risk individuals. From trial to clinical practice, it is crucial to obtain an accurate level of knowledge of the physicians who will recruit patients for a screening program. The actual current practice and knowledge of practitioners are unknown. This could be critical to develop dedicated continuous medical education programs. **Materials and Methods:** Three groups of French physicians—pulmonologists (PUs), thoracic oncologists (TOs), and general practitioners (GPs)—were surveyed through a dedicated questionnaire on lung cancer screening. **Results:** A total of 242 physicians answered the questionnaire; 81% of TOs knew that LDCTS showed efficacy for screening lung cancer compared with 52% of PUs and 18% of GPs ($P < .0001$). Approximately one third of physicians recommended lung cancer screening in daily practice at the time of the survey, including 53% of PUs, 34% of TOs, and 20% of GPs ($P < .001$). However, 94% of GPs, 44% of PUs, and 33% of TOs used inappropriate tests, mainly chest radiography. Most GPs proposed screening for all smokers, whereas PUs and TOs reserved screening for heavy smokers ($P = .040$). Most PUs and TOs recommended annual LDCTS (76%), whereas the majority of GPs sent patients for screening tests every 3 to 5 years (93%; $P < .0001$). **Conclusions:** These results highlight the interest of physicians for lung cancer screening; meanwhile, our data stress the need for appropriate medical education and recommendations based on available evidence.

Clinical Lung Cancer, Vol. 14, No. 5, 574-80
Keywords: Knowledge, Lung cancer, Practice, Primary care, Screening

*The Lyon Lung Cancer Screening Workgroup participants: Aurélien Belot, Nadine Bossard, Sébastien Couraud, Sylvie Erpeldinger, Delphine Gamondes, Françoise Gergelé, Nicolas Girard, François Gueyffier, Michel Lamure, Alain Moreau, Arnaud Seigneurin, Carole Siani, Pierre-Jean Souquet, and Pierre-Jean Valette

[1]Department of Respiratory Medicine, Hospices Civils de Lyon, Lyon Sud University Hospital, Pierre Bénite Cedex, France
[2]Claude-Bernard Lyon-1 University, Villeurbanne, France
[3]Department of Respiratory Medicine, Louis Pradel Hospital, Hospices Civils de Lyon, Lyon, France
[4]General Practitioner, Villeurbanne, France
[5]CNRS, UMR 5558, Laboratoire de Biométrie et Biologie Evolutive
[6]Pulmonology Department, Hospices Civils de Lyon, Croix-Rousse Hospital and INSERM U851, Lyon, France
[7]Rheumatology Department and Medical Education Research Group, Hospices Civils de Lyon, Lyon Sud University Hospital, Pierre Bénite, France

Submitted: Feb 5, 2013; Revised: May 11, 2013; Accepted: May 14, 2013; Epub: Jul 3, 2013

Address for correspondence: Sébastien Couraud, MD, MSc, Hospices Civils de Lyon, CH Lyon Sud, Service de Pneumologie et Oncologie Thoracique, 165 Chemin du Grand Revoyet, 69495 Pierre bénite Cedex
Fax: 0033 4 78 86 44 19; e-mail contact: sebastien.couraud@chu-lyon.fr

1525-7304/$ - see frontmatter
http://dx.doi.org/10.1016/j.clc.2013.05.003

Introduction

Lung cancer is the leading cause of cancer-related mortality in developed countries. Lung cancer is diagnosed at an advanced or metastatic stage in the majority of patients, and the therapeutic strategy is then considered palliative.[1] By contrast, early-stage tumors may benefit from curative-intent treatment, which is associated with an excellent prognosis.[2,3] Consequently, patients with lung cancer may benefit from screening, according to the World Health Organization criteria. Recent results from the National Lung Screening Trial (NLST) showed that annual low-dose computed tomography scan (LDCTS) decreased lung cancer-related mortality by 20% and overall mortality by 7% compared with annual chest x-ray in selected individuals (up to 55 years of age and < 75 years of age, current or former smokers who have quit for < 15 years and have a total consumption of > 30 pack-years).[4] At the same time, the Prostate Lung Colorectal Ovarian study showed that screening using chest radiography did not reduce lung cancer mortality when compared with usual care.[5] After the NLST, several academic groups elaborated guidelines[6] or statements about lung cancer screening in the United States[7] and in Europe.[8] Emphasize was placed on the potential benefits of screening using annual LDCTS. These groups underlined the necessity of following experts' recommendations for screening modalities and fully informing individuals about the benefits and potential risks.

Screening programs rely on the accurate knowledge and understanding of participating physicians, especially primary care physicians, such as pulmonologists (PUs) and general practitioners (GPs).[9] In France, assessing the practice and knowledge of such physicians is particularly important, because the French randomized trial evaluating lung cancer screening using LDCTS failed in part because of major difficulties encountered by the inclusion process that was mostly based on GPs.[10]

Our study aims to assess the current practice and knowledge of three different groups of physicians potentially implicated in lung cancer screening: GPs, PUs and thoracic oncologists (TOs).

Materials and Methods

This study was conducted in the Rhône-Alpes and Auvergne regions in France by the Lyon Lung Cancer Screening Working Group. This multidisciplinary group was created in June of 2012. It includes representatives of the university department of pulmonology and radiology, GP organizations, statisticians, methodologists, epidemiologists, and economists. The aim of the group is to create a multidisciplinary network to develop studies about lung cancer screening.

Questionnaire

A standardized questionnaire was created by the multidisciplinary group. It includes 12 questions. Most of them have with only one answer expected (Online Fig. 1). Three questions aimed at characterizing the physician profile: certification, practice type (private or public), and history. Other questions were about lung cancer screening; including methodology issues: "In your opinion, what is the best efficacy end point of a cancer screening program?" with the following choices: "increased incidence of early-stage lung cancer," "increased quality of life of individuals," "decreased lung cancer mortality," or "decreased overall mortality,"; and the results of screening studies: "Do you know about an efficient way to screen lung cancer?" with the following possible choices: "no," "sputum examination," "chest radiograph," "LDCTS (no contrast)," or "contrast-enhanced LDCTS." Participants were asked about their current practice on screening, including their target population, the tests they used, and the guidelines they followed. All physicians were asked about their opinion on the benefit of a tobacco-control program associated with a lung cancer screening program.

Population

GPs were surveyed during the most attended Continuous Medical Education meetings in the Rhône-Alpes region (Actualités Claude Bernard organized by Lyon 1 University). PUs were tested during the annual meeting of the Regional Respiratory Medicine Society. TOs were invited to participate in this study during the annual meeting for regional practice guidelines updating, organized by the Regional Cancer Network. All of these meetings occurred in October and November of 2012. The survey was distributed to each participant as a part of welcome-packs. All participants were informed of the study objectives and subsequently asked to participate by the organizers during the opening sessions of the meetings. Questionnaires were then collected during the meeting and before the lung cancer screening session if appropriate (PU and TO meetings). Physicians' consent for analyzing, reporting, and publishing their questionnaire was obtained by ticking a box on the survey sheet.

A total of 242 questionnaires were available for analysis: 155 in the GP group (35% of the 448 physicians registered for the meeting), 52 in the PU group (43% of the 120 registered physicians), and 37 in the TO group (71% of 52 registered physicians). Two participants did not give their consent by ticking the corresponding box (Fig. 1).

Statistical Analysis

Statistical analysis was performed with SPSS version 19 (IBM Corp., New York, NY). Chi-square and 2-sided exact Fischer tests were used as appropriate for comparing proportion of qualitative variables. Analysis of variance was used for comparing numeric variables. A $P < .05$ was considered significant.

Results

The main characteristics of the population are summarized in Table 1. There were strong differences ($P < .0001$) among the 3 groups in the type of certification and years of exercise. There was no significant difference among the 3 groups in the duration of exercise ($P = .069$).

Screening Methodology: End Points

Most GPs (50%) believed that the best indicator for assessing a screening program was "increased incidence of early-stage lung cancer" compared with 34% and 45% of TOs and PUs, respectively (Table 2 and Fig. 2). TOs and PUs indicated that the best end point should be "decreased lung cancer or overall mortality" (66% and 53%, respectively). The difference between "increased rate of early stage or quality of life" and "decreased overall or lung cancer mortality" was not significant for the 3 groups (Fig. 2A). However, if the PUs and TOs are pooled, 58% of physicians in the