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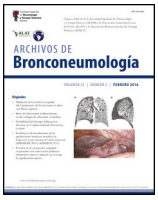

Editorial

Screening in lung cancer: The latest evidence☆

Cribado en cáncer de pulmón: últimas evidencias

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The results of the NEderlands Leuvens Longkanker Screenings Onderzoek (NELSON) study presented in the latest IASLC meeting in Toronto, Canada, confirm the findings of the National Lung Screening Trial (NLST).[1] This is the second prospective randomized trial that supports the effectiveness of lung cancer screening programs using low-dose computed tomography (LDCT). Both the NELSON study and the NLST have demonstrated a significant and clinically relevant reduction in lung cancer mortality attributable to annual LDCT.[2] We should bear in mind that these results are derived from a small number of screening rounds (4 in the NELSON study and 3 in the NLST). Therefore, the real benefit of a screening program can be expected to be greater, as LDCT continues to be performed over longer periods of time.

Screening is already a reality in the United States, where scientific societies, institutions, and insurers recommend that it is conducted in line with the NLST inclusion criteria (age ≥ 55 years and smoking habit ≥ 30 pack-years).[3] Until now, the evidence accumulated in Europe lacked the statistical power needed to confirm the North American findings, so our community was looking forward with some anticipation to receiving the results of the NELSON study. The European study was considered necessary on the grounds that the idiosyncrasies of the European health systems and population made us reluctant to simply adopt the recommendations of the American scientific societies that were based on the design and results of the NLST. The NELSON study was also designed to explore the use of volumetrics, doubling time, and flexible screening intervals, partly with the aim of reducing the rate of false positives and screening costs. Finally, the inclusion criteria of the NELSON study were less restrictive than those of the NLST (age ≥ 50 years, ≥ 10 years since quitting, tobacco use ≥ 15 pack-years). In spite of a sample size that is substantially smaller than that of the North American study (15,822 vs. 53,454 individuals), the NELSON study demonstrated a greater reduction in lung cancer mortality.[1] In the European study, 157 men in the screening group died of lung cancer compared to 214 in the control group, which represents an odds ratio of 0.74 (95 % CI: 0.60–0.91) in favor of screening. However, the benefit was even greater in women, with an odds ratio of 0.61 (95 % CI: 0.35–1.04), a finding that had already been suggested in a post-hoc analysis of the results of the NLST.[4] As an example of the effectiveness of screening, it should be noted that 50 % of lung cancers detected with LDCT in the NELSON study were stage Ia compared with a proportion of 75 % in advanced stages (III or IV) in the control group.

The results of the NELSON study, which were noticeably better than those of the NLST, justify the efforts devoted to the implementation of lung cancer screening in Europe, including the 2015 ERS/ESR consensus document and the guidelines sponsored by SEPAR and other Spanish scientific societies, such as SERAM, SEOM, and SECT, published in Archivos de Bronconeumologia in 2017.[5,6] Our society and its members have pioneered the implementation of screening programs. Three Spanish centers are currently participating in the ELCAP international cohort study, enrolling more than 12,000 individuals in early detection programs. This is almost twice the number of patients screened with LDCT in the NELSON study, and the results have been outstanding.[7] This experience has generated a large amount of evidence not only in favor of screening, but on how to perform it successfully. In addition to these findings, we have been able to refine fundamental aspects of screening, including patient selection and adherence to the program and follow-up recommendations, by using predictive logistic regression models on various series of patients included in screening programs.[8,9] The

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experience with screening in Spain has demonstrated the strong link between emphysema and lung cancer, and has enhanced our knowledge of the shared risk with COPD.[10] We now know that sleep apneas are common in patients with lung cancer, and that nocturnal hyppoxemia may lead to the appearance of suspicious nodules on LDCT.[11,12] The same could be said of early-stage interstitial lung disease, an LDCT finding that is uncommon but determinant.[13] This has led some authors to propose strategies to optimize inclusion criteria for screening programs, and even to define prognostic markers.[14,15] Special importance in this respect must be given to emphysema which, when added to the conventional criteria of age and smoking, increases the positive predictive value of the screening program, Nevertheless, we must evaluate whether including this parameter is justified, given the possible additional costs and complexity involved.

Much remains to be done, but unless we implement screening programs, we will remain silent witnesses to the high mortality of lung cancer in our country both among active smokers and those who have managed to quit. We must continue to insist on smoking cessation, while simultaneously putting into action the initiatives embodied in the consensus document of 2017.[6]

Conflict of interests

Dr Seijo has received funding from Menarini and Chiesi related to research projects on lung cancer and screening and has participated as a speaker in forums or courses organized by Esteve, Roche, Medtronic, Astra Zeneca, and Suministros Hospitalarios, related to lung cancer. Dr Zulueta is a part-time employee and shareholder of VisionGate, Inc. Dr Trujillo declares no conflicts of interest related to lung cancer.

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