

SCREENING

NELSON shows less is more in lung cancer screening

Low-dose CT screening has been recommended for asymptomatic smokers and ex-smokers at high risk of developing lung cancer. Although a high proportion of those screened will have pulmonary nodules detected, only a small percentage will have lung cancer. Raising the threshold for screening to avoid unnecessary CT scans is obviously attractive; however, the sensitivity to detect cancer might be decreased, leading to increased mortality.

Now, results from two published articles covering the NELSON trial, led by Nanda Horeweg, have addressed three unanswered questions: feasibility of screening intervals longer than 1 year, a two-step nodule-management strategy, and the use of cancer volume. “We considered it important to develop a screening strategy and a nodule management protocol with optimal detection of lung cancer and minimal numbers of CT scans, and invasive diagnostic procedures required to distinguish malignant from benign nodules,” explains

Horeweg. The study included 7,155 participants and showed that small nodules (<100 mm³ or <5 mm diameter) are not predictive of cancer development. Immediate diagnostic evaluation is necessary for large nodules (≥300 mm³ or ≥10 mm diameter). Volume doubling time assessment is advocated only for intermediate-sized nodules (100–300 mm³ or diameter 5–10 mm).

Crucially, “this is the first study to use lung cancer probability of the individual to design new nodule-management protocols and evaluate the performance of the new protocols in terms of sensitivity, specificity, predictive values and number of required additional diagnostic procedures, and to compare the new protocol to the current standard of practice,” says Horeweg.

Lung cancer screening in the NELSON trial yielded high specificity and sensitivity, with only a small number of interval cancers. Moreover, the disease-stage distribution of the lung cancers in this trial was as favourable as the results observed in the US National Lung Screening Trial, which demonstrated a 20% lung cancer mortality reduction by low-dose CT screening. Next steps for the NELSON team include “comparisons between the two study groups to determine low-dose CT screening on health-care utilization, costs and overdiagnosis.”

Lisa Hutchinson

Original articles Horeweg, N. *et al.* Lung cancer probability in patients with CT-detected pulmonary nodules: a prespecified analysis of data from the NELSON trial of low-dose CT screening. *Lancet Oncol.* doi:10.1016/S1470-2045(14)70389-4 | Horeweg, N. *et al.* Detection of lung cancer through low-dose CT screening (NELSON): a prespecified analysis of screening test performance and interval cancers. *Lancet Oncol.* doi:10.1016/S1470-2045(14)70387-0



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