PostScript

LETTERS

Prevalence of non-cancer-related abnormalities on low-dose spiral computer tomography versus chest radiograph in a screening population

We recently reported the presence of non-cancer-related abnormalities seen on chest radiographs (CXR) among subjects enrolled in a lung cancer screening trial.¹ More than 70 000 men and women enrolled in the screening arm of the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial received annual CXR screens for 4 years. Radiologists reported the presence of nodules/masses suspicious for cancer as well as other, non-cancer-related abnormalities. In an average of 3.3 CXR screens, 5.8% of subjects had chronic obstructive pulmonary disease (COPD), 16.8% had scarring, 17.5% had granuloma, 9.1% had cardiac abnormalities and 0.7% had pleural fluid reported on at least one examination. Controlling for smoking status, sex and age, we found increased hazard ratios (HRs) associated with COPD (HR = 1.8) and scarring (HR = 2.0) for diagnosis of lung cancer over a 3-year period after the screen. In addition, COPD (HR = 1.7), scarring (HR = 1.4), cardiac abnormalities (HR = 2.1) and pleural fluid (HR = 2.3) were associated with significantly increased HRs for non-lung-cancer mortality. These results suggest that the above abnormalities found on CXR may have clinical relevance.

Low-dose spiral computed tomography (LDCT) is currently being evaluated as a screening modality for lung cancer. Studies have shown that LDCT identifies nodules/masses in roughly twice as many people as CXR, and can identify 3-4 times as many cancers at baseline screening as CXR.^{2,3} This increased positivity rate and sensitivity, although possibly indicative of an increased ability of LDCT (over CXR) to detect lung cancers while they are still curable, also results in an increased burden of follow-up for LDCT. LDCT may also identify a greater number of non-cancer abnormalities (eg, COPD, scarring, cardiac abnormalities) than CXR. To the extent that these abnormalities are followed up, this could result in a further increased burden of follow-up for LDCT as compared with CXR, although it could also possibly lead to increased useful interventions.

The Lung Screening Study was a pilot study designed to assess the feasibility of conducting a randomised trial of LDCT versus CXR. The Lung Screening Study randomised a total of 3409 current and former male and female smokers aged 55-74 years with at least 30 pack years of smoking at six screening centres to either CXR or LDCT.⁴ The technical parameters for LDCT were a 120-140 kV peak, 60 mA current, 1 s scan time, 5 mm collimation and a pitch of 2 or equivalent. The CXR was posterior-anterior only. Radiologists reported specific non-cancer abnormalities as well as nodules/masses on the baseline screening form.

Table 1 shows the proportion of screened subjects with various non-cancer abnormalities reported on the baseline screen by study arm; for comparison, the proportion with nodules/masses is also shown. For most abnormalities, the relative risk (RR) for LDCT versus CXR is close to that for nodules/masses of 2.1. The exceptions are cardiac abnormalities, which were almost 5 times as common in the LDCT arm, bone lesions, which were much less common (RR = 0.24) on LDCT, and pleural fluid, which was reported about equally in each arm (RR = 1.2, p = NS).

The type of cardiac abnormality was further examined using the year one screening results. At this screen, radiologists reported non-cancer findings only in an "other specify" category requiring a verbatim response. Analysis of these responses showed that coronary calcification was reported for 19% of LDCT subjects compared with 0.7% of CXR subjects, whereas cardiomegaly was reported for 0.4% of LDCT subjects versus 2.1% of CXR subjects.

It is not clear whether the increased risks for lung cancer and/or non-lung-cancer mortality observed for various abnormalities reported on CXR will hold to the same extent for those abnormalities as reported on LDCT. However, there seems to be a potential for increased burden of follow-up associated with non-cancer abnormalities for high-risk subjects undergoing screening with LDCT as compared with CXR.

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When in doubt should we cut it out? The role of surgery in non-small-cell lung cancer

We wish to clarify a comment made in the editorial regarding our systematic review.¹ In an otherwise insightful piece, Holty and Gould² considerably played down the importance of complete mediastinal lymph node dissection (CMLND) in reducing locoregional and distant relapse after lung cancer resection because of what they called "stage migration". They are correct that about 10% of participants were excluded from analysis after randomisation and minor breaches of intention-to-treat principles occurred in two of the three trials analysed. These, however, should not be confused with the Will Rogers phenomenon,³ where more accurate staging results in better apparent survival for each stage subgroup. This is the problem with every retrospective or stage-matched series comparing CMLND with

Table 1 Prevalence of abnormalities at baseline, by study arm, Lung Screening Study

	CXR n = 1550	LDCT n = 1586	
	%	%	RR* (95% CI)
Nodule/mass	7.7	16.1	2.1 (1.9-2.4)
Granuloma	8.5	17.2	2.0 (1.8-2.3)
Scarring/pulmonary fibrosis	12.5	28.5	2.3 (2.1-2.5)
COPD	10.3	24.9	2.4 (2.2-2.6)
Pleural fibrosis	3.7	9.5	2.6 (2.2-3.0)
Pleural fluid	0.26	0.32	1.2 (0.5-2.9)
Bone/soft tissue	6.1	1.5	0.24 (0.17-0.37)
Cardiac abnormality	3.3	13.9	4.2 (3.7-4.8)

COPD, chronic obstructive pulmonary disease; CXR, chest x ray radiograph; LDCT, low-dose spiral computed tomography.

*RR is rate in the LDCT arm divided by rate in the CXR arm.