

Review: More frequent compared with less frequent chest radiographic screening may increase lung cancer mortality

Manser RL, Irving LB, Byrnes G, et al. Screening for lung cancer: a systematic review and meta-analysis of controlled trials. *Thorax*. 2003;58:784-9.

QUESTION

Does screening for lung cancer reduce lung cancer mortality?

DATA SOURCES

Studies were identified by searching MEDLINE (1966 to April 2001), EMBASE/Excerpta Medica, and the Cochrane Controlled Trials Register; contacting experts; scanning bibliographies of relevant studies; and hand-searching the journal *Lung Cancer* (1985 to 2000).

STUDY SELECTION AND ASSESSMENT

Randomized or nonrandomized controlled trials that examined the effect of screening for lung cancer (including use of chest radiography, sputum cytologic examination, and computed tomography) in adults on lung cancer mortality. Study quality measures included method of randomization, allocation concealment, blinding, and description of withdrawals and dropouts.

OUTCOMES

Lung cancer and all-cause mortality, and morbidity associated with screening.

MAIN RESULTS

7 studies were selected for inclusion (5 were randomized, 1 was cluster randomized, and 1 was nonrandomized). 5 studies compared more frequent chest radiographic screening with less frequent screening, and 2 studies assessed whether sputum cytologic examination at 4-monthly intervals reduced lung cancer mortality when added to screening with annual chest radiographs. More frequent chest radiographic screening was associated with a borderline increase in lung cancer mortality but no difference in all-cause mortality compared with less frequent screening (Table). 2 studies showed that screening with chest radiography plus sputum cytologic examination did not reduce lung cancer mor-

tality compared with chest radiography alone. Data on morbidity associated with screening were insufficiently reported.

CONCLUSIONS

More frequent chest radiographic screening compared with less frequent screening may increase lung cancer mortality. Screening for lung cancer with chest radiography plus sputum cytologic examination does not reduce lung cancer mortality compared with chest radiography screening alone.

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More frequent chest radiographic screening vs less frequent screening for lung cancer at 3 to 24 years*

Outcomes (number of studies)	Weighted event rates		RRI (95% CI)	NNH (CI)
	More frequent	Less frequent		
Lung cancer mortality (4)	1.65%	1.63%	11% (0 to 23)	4642 (947 to ∞)
All-cause mortality (4)	8.7%	8.3%	1% (-6 to 8)	Not significant

*Abbreviations defined in Glossary; RRI, NNH, and CI calculated from data in article using a fixed-effects model.

COMMENTARY

The review by Manser and colleagues is timely. On 1 hand, clinicians and organizations have long ago abandoned lung cancer screening using plain chest radiography and sputum cytology. In this regard, the meta-analysis is confirmatory. On the other hand, it emphasizes that currently, no data exist from randomized trials to support the widespread use of lung cancer screening by low-dose computed tomography.

Notwithstanding the recent interest in screening by low-dose computed tomography launched by the Early Lung Cancer Action Project (1) and the Mayo trial (2), clear indications that screening by computed tomography alters the natural history of the disease and reduces mortality are still pending. The issue of cost-effectiveness of lung cancer screening by computed tomography remains unresolved and is of concern, especially in jurisdictions where health care is funded through universal medical insurance programs. This apprehension is exacerbated by the anticipated finding of a large number of indeterminate pulmonary nodules requiring additional investigation. The results of such a randomized trial are not about to be published and are likely to be pre-

ceded by novel imaging and nonimaging methods of early detection that will further hamper the decision process (3).

Lung cancer screening should not divert clinicians, professional organizations, and health care payers from other actions more likely to reduce the long-term risk for mortality from lung cancer, such as anti-smoking campaigns and smoking cessation interventions.

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