



Title Lung Cancer Screening

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Aim

To analyze the effectiveness of the different lung-cancer screening tests proposed (low-resolution computerized helical tomography, chest radiography, and sputum cytology) for early diagnosis of lung cancer; to ascertain the potential of other screening tests; and to estimate the population eligible for lung cancer screening in Spain, in total and by autonomous region (*comunidad autónoma*).

Conclusions and results

a) Since no lung cancer screening tests reduce mortality or increase the proportion of cures, the implementation of a lung cancer screening program is not to be recommended. b) The most appropriate method of lung cancer screening is selective screening of smokers. c) Of the tests available, imaging tests are the most appropriate for hypothetical screening. Computerized tomography is the test that affords greatest sensitivity and specificity. d) Imaging tests involve exposure to radiation. Care is called for when conducting repeated imaging tests and proper assessment should determine whether these are really necessary. e) Studies published on lung cancer screening display methodological deficiencies, and the presence of biases that may affect the results cannot be ruled out.

Recommendations

The best way to prevent lung cancer is to refrain from smoking. It is more useful to invest lung cancer screening program resources in well-designed smoking prevention and cessation programs. To ascertain the true efficacy of available lung cancer screening tests, well-designed randomized trials are needed, with uniform, sufficiently long follow-up periods and well-defined final points. The NELSON study and National Lung Screening Trial (NLST) will furnish sound data for measuring the efficacy of screening with low-dose computerized tomography. More detailed information is required on the characteristics of those smokers who would be best suited for inclusion in a lung cancer screening program.

To ascertain the effectiveness of a hypothetical screening program in Spain, good data are required on population tobacco use at a national level, broken down by autonomous region, intensity of tobacco habit, sex, and age. It would also be useful to have unified, population-based data on national and regional lung cancer mortality and incidence.

Methods

We conducted a systematic review of the scientific literature published until January 2009, targeting different databases, namely: a) specialized systematic-review databases; b) specific databases for Clinical Practice Guidelines; c) general databases, eg, MEDLINE (PubMed), EMBASE, ISI WEB of Knowledge, and Spanish medical index; and d) specialized Web pages. Specific search strategies were drawn up for each database using the relevant descriptors and different key words. Two independent reviewers examined and selected papers retrieved in accordance with pre-established selection criteria that specified, eg, language, design and type of publication, sample size and study objective. To ascertain the number of persons eligible for screening in Spain, by sex and autonomous region, we obtained data on the population aged 50 to 74 years, prevalence of smokers, and prevalence of smokers of over 20 cigarettes/day. This information was used to calculate how many smokers ought to be screened under a hypothetical lung cancer screening program.

Further research/reviews required

This report should be reviewed and revised in 2011, when there are new data on published studies and the effectiveness of any new biological or imaging tests.