The NELSON lung cancer screening trial results are inferable for the general high-risk

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Results of the NELSON lung cancer screening trial using low dose computed tomography (LDCT) can be used to predict the effect of population-based screening on the Dutch population even though there were slight differences in baseline characteristics of participants in the control arm versus eligible non-participants.

In the United States, the National Lung Screening Trial (NLST) showed that lung cancer screening with LDCT can reduce lung cancer mortality by 20% compared to chest x-ray for a high-risk population defined as current or former smokers with at least a 30 pack year history and an age of 55-74 years. In Europe, the ongoing Dutch-Belgian lung cancer screening trial (NELSON) investigated whether screening with LDCT can reduce lung cancer mortality by at least 25% compared to no screening at 10 years of follow-up for individuals aged 50-75 years, who had a smoking history of ?15 cigarettes per day for ?25 years or ?10 cigarettes for ?30 years, and were still smoking or had quit ?10 years ago. It is important when interpreting the results of screening studies to know whether study participants are representative of the target population, since there may be selection bias in the volunteers who are willing to participate in screening programs.

In the NELSON trial individuals at high risk for lung cancer were identified by sending a health questionnaire to 606,409 persons aged 50-74. Of those that responded, 30,051 eligible subjects received an invitation to participate with 15,822 accepting and randomized to either LDCT (N=7,915) or control (N=7,907). The remaining individuals were

defined as eligible non-responders (non-participants) and in this sub-study of the NELSON trial the baseline characteristics and mortality profiles of eligible non-participants (N=13,670) were compared to the control arm (N=7,453).

The results published in the *Journal of Thoracic Oncology*, the official Journal of the International Association for the Study of Lung Cancer (IASLC), show that the control participants of the NELSON trial, were statistically younger, had better self-reported health, were more physically active, higher educated, and more often former smokers compared to eligible non-participants, although the actual numerical differences were minimal. Eligible non-participants had a higher all-cause mortality rate and mortality due to cardiovascular, respiratory, and non-cancerous diseases, however, the relative proportion of subjects that died due to all types of cancer was higher among participants.

The authors note that "so far no large lung screening trial using LDCT has studied the differences in baseline characteristics and potential effect on mortality profiles between participants and eligible non-participants. While the distribution of participant characteristics in the NELSON study suggest that the study population is somewhat younger, healthier (e.g. more physically active, less current smokers), higher educated and has a slightly different mortality rate profiles, these differences are modest and therefore it seems unlikely that these differences will influence the generalizability of the main results of the NELSON trial to the target population."

More information: journals.lww.com/jto/Abstract/ … tcomes_of.98980.aspx

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