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CT scans of smokers can reduce lung cancer deaths by 20%, study reports

The findings from the National Cancer Institute are considered to be a major step forward in fighting lung cancer, because chest X-rays have never been shown to be an effective tool for identifying tumors.

By Thomas H. Maugh II, Los Angeles Times

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Advanced CT imaging can reduce deaths from lung cancer by 20% among heavy smokers by detecting tumors at an earlier stage when they are more treatable, according to results released Thursday from the first study to compare the value of CT scans and regular chest X-rays for lung cancer screening.

The long-awaited results of the trial involving more than 53,000 former and current heavy smokers were so conclusive that the study was terminated ahead of schedule last week and letters were sent to all the participants advising them of the results.

The findings are considered a major step forward in fighting the most deadly form of cancer — which is expected to kill an estimated 157,000 Americans this year — because chest X-rays have never been proven to be an effective tool for identifying tumors. CT scans are more powerful and provide a much clearer picture of the lungs.

At least 85% of lung cancer deaths occur in smokers or former smokers. By the time symptoms develop, the cancer has often spread to the point that it is difficult to treat.

"This is the first clear demonstration that a screening procedure can be effective in reducing deaths from lung cancer," Dr. Douglas Lowy of the National Cancer Institute, which sponsored the \$250-million study, said in a telephone news conference from Bethesda, Md.

The study "has important implications for public health," added Dr. Harold Varmus, director of the National Cancer Institute, "but no one should believe that it is safe to continue to smoke or to start smoking. We can reduce deaths by 20%, but screening does not prevent lung cancer or prevent the large majority of deaths from lung cancer."

Varmus said the scientists were still analyzing all the data and hoped to prepare a scientific paper for publication within the next few months.

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He also noted that the researchers were not making any recommendations about whether routine screenings should be conducted in any group. Such recommendations should not be made until the full analysis is complete, he said, and are usually made by other groups, such as the U.S. Preventive Services Task Force.

Dr. Otis W. Brawley, chief medical officer of the American Cancer Society in Atlanta, said the group would take the new findings into account in its future recommendations, but only after they were published and reviewed by independent experts. Until then, he said in a statement, "the best advice we can give is to encourage people to have conversations with their doctors about whether lung cancer screening is right for them."

The technology involved in the screening is called low-dose spiral CT imaging, in which a complete three-dimensional image of the chest cavity can be produced during the duration of one held breath. The technology is much more sensitive than a conventional chest X-ray, but also exposes the patient to much more radiation — about the same amount associated with a conventional mammogram, according to Dr. Denise R. Aberle of UCLA's Jonsson Comprehensive Cancer Center, the principal investigator of the study.

A typical spiral CT costs between \$300 and \$1,000 and, unless it is for diagnostic purposes, is not paid for by insurers.

Participants in the study were enrolled at 33 sites nationwide in 2002 and 2003. Each was between the ages of 55 and 74 at the beginning of the study and had smoked the equivalent of a pack a day for 30 years. Subjects were randomized to receive either yearly chest X-rays or yearly spiral CTs for three years, then monitored for the duration of the study. Lung cancer deaths were confirmed by a panel of experts.

By Oct. 20, a total of 354 lung cancer deaths had occurred among those in the CT arm of the study, compared with 442 in the chest X-ray group — a difference too large to be due to chance. Deaths from any cause, including lung cancer, were reduced by 7% in the CT group. The data-monitoring board concluded that the study had met its goal and sent a letter to Varmus on Oct. 28 recommending that the study be stopped.

"This is some of the best news we've had in a decade," said Dr. Bruce E. Johnson, a thoracic oncologist at the Dana-Farber Cancer Institute in Boston. "I've been treating lung cancer patients for 35 years, and 85% die of it. Cutting that down by 20% is a pretty big event."

Despite the success, Lowy cautioned that there could be some downsides to screening. In addition to cost, there is the problem of false positives. About 25% of the CT subjects in the study had false positives. Many of those were cleared up by additional diagnostic CT scans, which showed the abnormalities to be scarring or other artifacts, but some required lung biopsies, which proved unnecessary.

Also, he said, "it remains to be determined if the radiation doses increase the risk of cancer over the remainder of the participants' lifetimes."

thomas.maugh@latimes.com

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