Statins May Lower Lung Cancer Risk

May 09, 2007
SHREVEPORT, La. -- Lipid-lowering statins cut the relative risk of lung cancer 55%, according to a retrospective study.

SHREVEPORT, La., May 9 -- Lipid-lowering statins halved the relative risk of lung cancer, according to a retrospective study.

Use of a statin for at least six months was associated with a 55% reduced risk of lung cancer, Vikas Khurana, M.D., of Louisiana State University Health Sciences Center here, and colleagues reported in the May issue of Chest.

An accompanying editorial, however, raised concerns about the design of the study.

The lung cancer findings came a year after Dr. Khurana and colleagues reported a 51% reduced breast cancer risk with statin use and significantly reduced relative risks of esophageal, pancreatic, and liver cancer.

All of their studies used data generated by the South Central VA Health Care System. The present study, the researchers said, is the first, large, population-based study of statins and lung cancer.

The retrospective nested case-control study of 483,733 patients from eight states used data prospectively collected from 1998 through 2004.

Among the mostly male patient base, 163,662 (33.8%) were receiving statins. There were 7,280 (1.5%) patients with a primary diagnosis of lung cancer; 476,453 without lung cancer served as controls.

The duration of statin use was defined as the time of usage before a lung cancer diagnosis or time of usage until data collection was completed. An assumption was made that the patient had not taken statins before receiving them in the VA system.

Of the lung cancer patients 17.4% used statins, as did 33.9% of the controls, the researchers reported.

The adjusted odds ratio for using a statin for more than six months was 0.45 (95% CI, 0.42 to 0.48; P Furthermore, the researchers said, the data obtained after six months of statin use clearly showed a decreasing lung cancer risk with increasing duration of statin use.

In vitro studies have shown beneficial effects of statins on human and animal lung tumor models, the researchers said. These effects were attributed in part to the antiproliferative, proapoptotic, and anti-invasive properties of statins.

In the studies, statins were shown to suppress angiogenesis through their effects on vascular endothelial growth factor, and alter invasion and metastatic potential through interaction with adhesion molecules.

Sounding a note of caution, however, the researchers acknowledged certain limitations of their study, noting that because it included only VA patients, mostly men, it was impossible to rule out unknown biases or confounders.

Other limitations, they noted, included failure to adjust for other risk factors such as exposure to asbestos or passive smoke or potential risks such as dietary factors, genetic factors, and the presence of underlying benign forms of lung disease.
Also, they said, dose, duration, and type of statin were not factored into the analysis, and the findings may have been confounded by the indication for statin use in the first place.

But, because of the high prevalence of statin use and the grave prognosis of lung cancer, even a modest risk reduction means a considerable effect on public health, the researchers said.

"Our study suggests that statins have a potential role in primary chemoprevention for lung cancer. Well designed randomized prospective double-blinded placebo-controlled clinical trials are necessary to validate the value of statins in lung cancer prevention and treatment," Dr. Khurana concluded.

In an accompanying editorial, Gerold Bepler, M.D., Ph.D., of the H. Lee Moffitt Cancer Center and Research Institute in Tampa, Fla., and colleagues wrote that agents explored to date for chemoprevention in lung cancer have not been shown to be effective and, in the case of beta-carotene, were even associated with an increased risk.

This speaks to the importance of evaluating agents in a randomized, prospective fashion as the gold standard for proof of efficacy, they said.

Although epidemiologic data have shown an association between the use of statins and a decrease in the incidence of cancer, the editorial writers noted, data also exist against the use of statins for the chemoprevention of cancer.

The results of the Khurana study are encouraging, Dr. Bepler wrote, but as the authors pointed out, the study has weaknesses innate to its design.

Other questions remain, the editorial writers suggested: Is one statin superior to another? Do lifestyle changes have an effect? What about length of treatment?

To answer these and other questions, prospective data need to be obtained in controlled clinical trials, possibly with surrogate biomarkers as the primary end point initially to minimize time, cost, and sample size of such studies, the editorialists wrote.

They also pointed out that patients in this study who'd used statins for less than six months had an increased risk of lung cancer, which, they said, "raises the question of a potential tumor promoting effect of statins."

The authors of the study interpreted these data differently. "We do not believe that the statins actually caused an increase in lung cancer. We postulate that this represents a skewed group caused by recording of the data at the time of entry of the patient into the database and may represent an old diagnosis or recording issue at the time of entry into the VA Health Care System," they wrote.

At present, the editorialists advised, statins should be used based on the strict guidelines of the Adult Treatment Panel III until data from randomized controlled phase III trials with lung cancer incidence and mortality become available.

No financial conflicts were reported by the study authors or the editorial writers.

Source URL: