

## The Statins as Anticancer Agents

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The Danish authors team, in a nationwide study, tested the hypothesis that statin use begun before a cancer diagnosis, induce the reduced cancer-related mortality. This demonstration would be very exciting, because many old patients with cancer receive statins as prophylaxis for cardiovascular events.

The statins inhibit the production of endogenous cholesterol and may influence also cell proliferation and migration. A reduction on the cholesterol level could lead to decreased proliferation and metastasis of cancer cells. Statins had anticancer proprieties (halting cell-cycle progression in cancer cells) and reduced the risk of cancer recurrence. Many of cholesterol products resulting of synthesis pathway are used in cells proliferation. Disruption of these processes conduct to inhibition of cancer growth and metastasis, reduce angiogenesis and stimulate apoptosis. All this informations are available since 2003. Statins are selectively localized to the liver and for different malignant proliferation, other than liver and biliary cancer, a plausible mechanism of the effect could be the reduction of plasma level of cholesterol.

Statistical analysis in this paper demonstrates that the cumulative number of death from cancer was lower among statin users. The observational group, 295,925 patients from entire Danish population, had received the diagnosis of cancer between 1995-2007 and was followed until 31 december 2009. During

1,072,503 person-year of follow-up, 195,594 patients died: 162,067 from cancer, 14,489 from cardiovascular causes and 19,038 from other causes. Among patients, 40 years and older, 18,721 received statins before cancer diagnosis and 277. 204 had never used statins. All cause mortality among patients with cancer taking statins was reduced by 15%, and only by 10% as risk for death from cardiovascular causes. The reduced cancer related mortality among statin users as compared with patients who had never used statins was observed for 13 cancer types.

The absence of a dose-response relationship for statin and cancer related mortality suggest that any statin dose will suffice in reducing mortality among patients with cancer.

Statin use does not influence *cancer incidence* in population receiving statin with aim of reducing cardiovascular events.

It was speculated that statins use is a marker of increase health awareness of the population and this patients group (statin users) are close with professional survey and so to explain the results (a reduction of cancer mortality with 15% for statin receiving patients). The smoking-cessation interventions among statin users with cardiovascular disease could distort the relationship between statin and mortality from smoking-related cancer. Basic science study are needed to assess the mechanism through witch statin work and if the cardiovascular and cancer effect of statins are due to overlapping or independent action.

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*Comment on a paper:*

Nielsen SF, Nordestgaard BG, Bojesen SE – Statin Use and Reduced Cancer-Related Mortality, *N Engl J Med.* 2012;367:1792-1802.

Caporaso NE – Statin and Cancer-Related Mortality - Let's Work Together, *N Engl J Med.* 2012;367:1848-1850