Prostate Cancer Risk Lower in Digoxin Users

BY BRUCE JANCIN

DENVER — Men on digoxin were roughly one-quarter less likely to be diagnosed with prostate cancer than digoxin nonusers, according to findings from the Health Professionals Follow-Up Study.

The longer the duration of digoxin use, the lower the risk of prostate cancer. Indeed, men on digoxin for at least 10 years had a 42% relative risk reduction for the malignancy compared with never-users, Elizabeth A. Platz, Sc.D., said at the annual meeting of the American Association for Cancer Research.

The Health Professionals Follow-Up Study is a very large, prospective, Harvard University–based cohort investigation. Dr. Platz reported on 4,511 cases of prostate cancer that occurred among 47,759 participating men aged 40-75 years during 745,041 person-years of follow-up.

The longer the duration of use, the lower the cancer risk. Men on digoxin for at least 10 years had a 42% relative risk reduction for the malignancy compared with never-users.

At baseline, 2% of the participants were on digoxin. Their risk of developing prostate cancer during the follow-up period was 26% lower than in digoxin nonusers, even after adjusting for numerous potential confounders, including dietary differences and the use of other medications, among which were statins and aspirin, explained Dr. Platz, a cancer epidemiologist at Johns Hopkins University, Baltimore.

The association between digoxin use and reduced risk of developing prostate cancer was equally robust among those prescribed the drug for heart failure and those on digoxin for arrhythmias, she added.

Dr. Platz stressed that the digoxin analysis was not a "fishing expedition." Rather, digoxin came under scrutiny as the result of a multidisciplinary project that began with bench scientists screening literally thousands of Food and Drug Administration–approved medications for their ability to inhibit prostate cancer cell growth in vitro. Digoxin was selected for further investigation because it exhibited moderate antiproliferative activity and is widely enough prescribed that its association with prostate cancer in clinical practice could reasonably be studied.

As an aside, Dr. Platz noted that digoxin's degree of in vitro inhibition of prostate cancer cell growth was even greater than a statin's performance in the same assay. The significance of this observation lies in the fact that a landmark investigation—also conducted using data from the Health Professionals Follow-Up Study cohort—concluded that the multivariate-adjusted relative risk of advanced prostate cancer in current statin users was reduced by 49% and the risk of metastatic or fatal disease was reduced by 61%, compared with nonusers. Dr. Platz was first author of the statin study (J. Natl. Cancer Inst. 2006;98:1819-25).

Encouragingly, the finding that statin therapy was indeed associated with a reduced risk of advanced prostate cancer was subsequently confirmed in three other very large epidemiologic studies published simultaneously: the Cancer Prevention Study II, the California Men's Health Study, and a Finnish study of all cases of prostate cancer diagnosed in that country during a recent 8-year period (Cancer Epidemiol. Biomarkers Prev. 2007;16:2213-7; 2218-25; and 2226-32, respectively).

Dr. Platz and her associates plan to study the mechanism of action by which digoxin prevents prostate cancer. This could perhaps lead to development of a drug targeting the specific pathway influencing cancer risk.

Digoxin could conceivably find a role for chemoprevention in selected high-risk men, or perhaps in the treatment of prostate cancer, but its potent cardiovascular effects make it poorly suited for use in broad-scale chemoprevention, she said.

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