The increasing cancer-related mortality related to rapid decreases in blood pressure from the pharmacologic treatment of hypertension as seen in the Systolic Hypertension in the Elderly Program (SHEP; 1) draws interesting parallels to the PROspective Study of Pravastatin in the Elderly at Risk (PROSPER) trial (2). The data suggest that some common treatments used for the prevention of cardiovascular disease (CVD)-related mortality in the elderly might increase cancer-related mortality in this age group, leaving all-cause mortality unchanged.

The SHEP trial randomized 4,736 elderly men and women (mean age 72 years) with isolated systolic hypertension to either placebo or chlorthalidone 12.5 mg daily and atenolol 25 mg daily if necessary to control blood pressure and reduce CVD. The active trial lasted an average of 4.5 years and subjects with remote or prevalent cancer, other than nonmelanoma skin cancer, were excluded from trial participation. Subjects alive at the end of the active trial were followed for an additional 15 years and mortality data were correlated with the intensity of active trial blood pressure reduction. Disturbingly, the degree of blood pressure reduction in the active trial correlated directly with an increase in cancer-related mortality over the 15 years. Although CVD-related mortality was decreased, all-cause mortality was unchanged.

The PROSPER trial randomized 5,804 elderly men and women (mean age 75 years) at high risk of CVD and hypercholesterolemia to either placebo or pravastatin 40 mg daily to lower blood cholesterol concentration and reduce CVD. The trial lasted an average of 3.2 years and as in the SHEP trial, a history of cancer was exclusionary for trial participation. The subjects randomized to pravastatin during the trial exhibited a reduction in CVD-related mortality; unfortunately, cancer-related mortality in the pravastatin group increased equal to the magnitude of the decrease in CVD-related mortality, leaving all-cause mortality unchanged (2).

It is plausible that the pharmacologic lowering of blood pressure and cholesterol can promote cancer in the elderly. The elderly are more likely to harbor nonclinical microscopic cancers than younger subjects. Antihypertensive treatment can stimulate de novo angiogenesis (3); and statin therapy can increase regulatory T-cell numbers and functionality (4) and inhibit natural killer cell cytotoxicity (5). Therefore, the elderly might be particularly susceptible to the promotion of nonclinical microscopic tumors from both the stimulation of angiogenesis by blood pressure lowering and immunosuppression by statin therapy. Importantly, this needs prospective investigation because hypertension and hypercholesterolemia are now more aggressively treated. Hopefully, we are not just trading mortalities.

Disclosure of Potential Conflicts of Interest
No potential conflicts of interest were disclosed.

Received July 15, 2014; accepted July 16, 2014; published online November 3, 2014.

References
Cancer Death and Antihypertensive Drug Treatment—Letter

Mark R. Goldstein and Luca Mascitelli

Cancer Epidemiol Biomarkers Prev 2014;23:2607.

Updated version
Access the most recent version of this article at:
http://cebp.aacrjournals.org/content/23/11/2607

Cited articles
This article cites 5 articles, 1 of which you can access for free at:
http://cebp.aacrjournals.org/content/23/11/2607.full#ref-list-1

Citing articles
This article has been cited by 1 HighWire-hosted articles. Access the articles at:
http://cebp.aacrjournals.org/content/23/11/2607.full#related-urls

E-mail alerts
Sign up to receive free email-alerts related to this article or journal.

Reprints and Subscriptions
To order reprints of this article or to subscribe to the journal, contact the AACR Publications Department at pubs@aacr.org.

Permissions
To request permission to re-use all or part of this article, contact the AACR Publications Department at permissions@aacr.org.