Secondhand Smoke May Raise C-Reactive Protein

Healthy adults exposed to high levels of secondhand smoke show elevated C-reactive protein (CRP), a known cardiovascular risk factor, according to a large-scale, population-based study. The elevated CRP levels partly explain the higher than average risk of cardiovascular death among people exposed to secondhand smoke, said Mark Hamer, Ph.D., of the department of University College, London, and his associates.

Noting “very few large-scale, population-based studies have collected objective biochemical markers of secondhand smoke exposure with follow-up data on mortality,” the investigators did so using data from the Scottish Health Survey and the Health Survey for England.

Dr. Hamer and his colleagues assessed data on 13,443 men and women aged 35 years and older who were free of cancer and cardiovascular disease at baseline and were followed for an average of 8 years. Exposure to secondhand smoke was determined by measuring salivary cotinine, and blood samples were analyzed for circulating CRP levels.

Approximately 21% of the subjects had high exposure to secondhand smoke. During follow-up there were 1,221 deaths from all causes and 364 deaths from cardiovascular causes. Both types of mortality were associated with greater exposure to secondhand smoke.

Greater exposure to secondhand smoke was also associated with higher CRP levels, indicating chronic low-grade inflammation. This link “partly explained the elevated risk of [cardiovascular disease] and all-cause death associated with high secondhand smoke” exposure, the investigators said (J. Am. Coll. Cardiol. 2010;56:18-23).

In the subgroup of subjects who had never smoked, the risk of CRV-related death was twice as high among those with greater exposure to secondhand smoke as among those with lesser exposure. However, there was no significant association with CRP in this subgroup, indicating another cause for the excess cardiovascular risk in these subjects.

There also was a significant association between secondhand smoke and all-cause mortality in never-smokers (hazard ratio 1.33) and in ex-smokers (HR 1.14). In addition, there was no association between secondhand smoke exposure and CRP in the subgroup of ex-smokers. “This might be partly because ex-smokers already have heightened risk of CVD in comparison with never-smokers, thus secondhand smoke exposure might not add to existing risk,” Dr. Hamer and his associates noted.

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