

Pollution puts women's hearts at risk

Grit in the air drastically raises odds of fatal attacks, study says.

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BOSTON - The fine grit in polluted air boosts the risk of heart disease in older women much more powerfully than scientists realized, a big federally funded study has found, raising questions of whether U.S. environmental standards are strict enough.

The Environmental Protection Agency tightened its daily limit for these tiny specks, known as fine particulates, in September. But it left the average annual limit untouched, allowing a concentration of 15 millionths of a gram for every cubic meter of air.

In this study of 65,893 women, the average exposure was 13 units, with two-thirds of the subjects falling under the national standard. But every increase of 10 units, starting at 0, lifted the risk of fatal cardiovascular disease by about 75 percent. That is several times higher than in a study by the American Cancer Society.

“There was a lot of evidence previously suggesting that the long-term standard should be lower, and this is adding one more study to that evidence,” said Douglas Dockery, a pollution specialist at the Harvard School of Public Health.

He wrote an accompanying editorial for the study, which was published in Thursday’s New England Journal of Medicine. The University of Washington-based researchers worked from data collected for the Women’s Health Initiative, a well-respected research project that previously showed the heart dangers of hormone supplements.

Women more susceptible

It has long been known that particulates can contribute to lung and heart disease, with women perhaps more susceptible than men to heart problems, perhaps because of their smaller blood vessels and other biological differences.

But the degree of risk for older women was less clear. This study started with women who had gone through menopause and were 50

to 79 years old.

Unlike earlier studies, it looked not just at deaths, but also at heart attacks, coronary disease, strokes and clogged arteries. These problems were 24 percent more likely with every 10-unit rise in particles. Almost 3 percent of the women suffered some kind of cardiovascular problem.

The risk varied along with the varying levels of these particles in different neighborhoods within the same city.

In their calculations, the researchers tried to adjust for lower income and other health problems that have been blamed for the higher rates of disease in past studies.

“I think the major contribution is answering the critics of the prior studies,” said the paper’s senior researcher, Dr. Joel Kaufman of the University of Washington. “The effect seems large and important and should be taken seriously.”

The push for tighter rules on ozone States and other groups demanding a lower annual standard sued the EPA last year, accusing it of disregarding the advice of its own scientists. Some agency scientists are also pushing for tighter rules on ozone, the chemical that creates smog and contributes to asthma and lung disease.

The EPA is scheduled to take another look at its standard for particulate matter and complete it by 2001.

“It’s too soon to say how much weight any single study will have, but this study will be considered as part of this continuous process,” said EPA spokesman John Millett.

Dr. Len Horovitz of Lenox Hill Hospital in New York, who was familiar with the findings, said they could create “a bit of a firestorm” for the future review.

The tiny bits of grit are believed to reach deep into the lungs to spur inflammation that promotes heart attack and stroke. They are so small that it would take about 30 to equal the thickness of a human hair.

These particles — made of dust, soot and various chemicals — come from burning fuel in cars, factories, and power plants. While individual particles are too small to see, they can be observed collectively as urban haze.