

C8 exposure linked to onset of menopause

By Ken Ward Jr.

Staff writer

Women exposed to higher levels of the toxic chemical C8 were more likely to have experienced menopause, according to a new West Virginia University study that offers some of the strongest evidence to date that such chemicals disrupt the human body's natural hormone system.

The study found an association between chemicals called perfluorocarbons, or PFCs, in women's blood and the onset of menopause. It also found that higher levels of the chemicals appeared related to lower levels of estrogen.

"I think this is major," said Sarah Knox, lead author of the study and a professor at the WVU School of Medicine's Department of Community Medicine. "It shows that early menopause is associated with PFC exposure."

The study, published last week by the Journal of Clinical Endocrinology & Metabolism, looked at data for nearly 26,000 to compare their menopausal status with the concentration of PFCs and estrogen in their blood. The women were all within the ages of 42 and 64, the typical period when women experience menopause.

It is the largest study ever done on effects of these chemicals on the hormone systems of women.

After controlling for age and other factors, Knox and her colleagues found that women within the group studied were more likely to have experienced menopause if they had higher levels of PFCs in their blood than women with lower concentrations of the chemicals.

Premature menopause has been found to be linked to a variety of health problems for women, including death associated with cardiovascular disease. Women who experience early menopause have also been found to experience a decline in fertility before the age of 32.

The study is part of the C8 Health Project, an effort by WVU to study a huge database of information on the

chemical gathered as part of a settlement between Parkersburg-area residents and DuPont Co. over the company's Washington Works plant polluting local water supplies with C8.

C8 is another name for perfluorooctanoic acid, or PFOA, and is one of the family of chemicals known as PFCs. C8 and other PFCs have been widely used in nonstick coatings, stain-resistant fabrics and food package coatings.

Around the world, researchers are finding that people have C8 and other PFCs in their blood. Evidence continues to mount about the dangers of these chemicals, even at very low levels — and at levels the general public may be exposed to — but U.S. regulators have yet to set a federal standard for emissions or human exposure.

C8 exposure has been linked to a variety of health problems, including liver damage, immune problems, developmental abnormalities, birth defects and high cholesterol.

The levels of C8 in the blood of those studies exceeded the aver-

age general population's exposure by 500 percent, because of the exposure to contaminated drinking water near the DuPont plant.

But the study also looked at blood levels of a related PFC known as PFOS. Researchers found a stronger association between PFOS and the onset of menopause. And, the levels of PFOS in the women studied were similar to the concentrations found in the blood of the general U.S. population.

"The source of elevated PFOA levels was primarily contaminated water, but the source of PFOS was primarily sources in the ambient environment," the study said. "This means that the effects of PFOS in this sample are probably typical for those in the population as a whole."

Researchers said that it is possible that PFC concentrations are higher in postmenopausal women because they are no longer losing blood.

"Menstrual flow eliminates some of the PFC in blood, and because blood is replaced faster than the toxicant, concentrations measured in menstruating

women could be lower than those who aren't menstruating, even with the same exposure level," the study said. "Thus, the argument could be made that some of the significance associated with an increased risk of menopause associated with increased PFC might be due to reverse causation, i.e., the disappearance of menses causing increases in PFC concentrations rather than an increase in PFC causing early menopause."

But researchers said that even if this "reverse causation" is at work, the results "would still be cause for alarm because it would imply that increased PFC exposure is the natural result of menopause or hysterectomy."

"Regardless of mechanism, the results have serious clinical implications for women's health," the study said. "The additional question that needs to be asked is whether these increased exposure levels are more adverse in an aging body whose systemic defenses may be less robust."

Reach Ken Ward Jr.
at kward@wvgazette.com
or 304-348-1702.

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