

LAY ABSTRACT

Serum Concentration of DDE, PCBs, and Other Persistent Organic Pollutants and Mammographic Breast Density in Triana, Alabama, a Highly Exposed Population
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Persistent organic pollutants, or POPs, are chemicals that can stay in our bodies for many years. Some research studies suggest that exposure to POPs might increase the risk for developing breast cancer. Because breast cancer may take many years to develop, researchers sometimes study mammographic breast density (MBD), a marker of increased breast cancer risk. MBD is a measure of the amount of dense breast tissue compared to the amount of fatty breast tissue as seen on a mammogram. Women with a greater percentage of MBD are at increased risk of developing breast cancer. Therefore, studying if higher exposure to POPs is associated with higher MBD may help to understand if exposure to POPs may increase breast cancer risk.

This study included information from 210 women from Triana, Alabama, who agreed to participate in the study in 1998. Most of the women in the study (about 80%) were African American. A number of different POPs were measured in the blood (serum) of the women in the study – DDT, DDE (our bodies break down DDT into DDE, so DDE was the main measure of DDT exposure in this study), PCBs, and four others (heptachlor epoxide, mirex, oxychlorane, and trans-nonachlor). Each woman in the study also had a mammogram to determine MBD.

At the time they joined the study, women were aged 19 to 91. Overall, the investigators did not find a strong relationship between higher levels of DDE in the blood and higher MBD.

For older women (aged 55 to 91 years in 1998), higher blood levels of DDE were associated with lower MBD. Younger women (aged 19 to 54 years in 1998) with higher blood levels of PCBs and other POPs – heptachlor epoxide, oxychlorane, and *trans-*

nonachlor – and who were likely exposed to in early life (prior to age 18), had higher MBD. Because the number of women in this study is small, more research is needed to understand how early life exposures to POPs increases MBD later in life.

This study provides additional scientific information regarding POPs exposure and possible risk of developing breast cancer. As we already know, everyone should try to limit or avoid exposures to these POPs by limiting consumption of fish from polluted waters. Women with previous exposures, who may be at increased risk in the future should make sure to follow breast cancer screening recommendations for their age group and talk with their healthcare provider about their personal risk for breast cancer. It should also be noted, although MBD is associated with elevated risk for breast cancer, not all women with higher MBD go on to develop breast cancer.