

# Pregnancy Nausea/Vomiting May Indicate Lower Risk of Breast Cancer

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It may not seem so at the time, but women who suffer through morning sickness during their pregnancies actually may be fortunate.

Those women may have a 30 percent lower risk of developing breast cancer later in life than mothers-to-be who experience nine nausea-free months, a new study by epidemiologists at the University at Buffalo suggests.

"Although the exact mechanism responsible for causing nausea and vomiting during pregnancy has yet to be pinpointed, it likely is a result of changing levels of ovarian and placental hormone production, which may include higher circulating levels of a hormone called human chorionic gonadotropin," said David Jaworowicz, Jr., first author on the study.

"In vitro studies have shown that this hormone possesses several activities that have potential protective effects against cancer cells," said Jaworowicz, a doctoral candidate in the Department of Social Preventive Medicine in UB's School of Public Health and Health Professions.

Jaworowicz's research, which was presented today at the Society for Epidemiologic Research's annual meeting in Boston, Mass., found no association of other pregnancy-related medical conditions -- pregnancy-induced hypertension, preeclampsia, gestational diabetes or weight gain -- and breast-cancer risk.

The study was based on data from participants in the Western New York Exposure and Breast Cancer Study, a population-based case-control study of breast cancer conducted in women 35-79 from two Western New York counties between 1996 and 2001.

The analysis compared extensive data on pregnancy-related conditions from 1,001 women with primary breast cancer and 1,917 women without breast cancer matched to cases by age and race who served as controls.

"Pregnancy is a time when the breast undergoes a variety of cellular and anatomical changes," said Jaworowicz. "During this period, the breast tissue is exposed to varying levels of a number of hormones, which may affect the physiology of the breast.

"We were interested in the association between pregnancy-related events and characteristics, including pregnancy-induced hypertension, preeclampsia/eclampsia, gestational diabetes, high weight gain during pregnancy, and nausea and vomiting, because these markers may serve as proxies for underlying hormonal changes and altered hormone levels in blood and tissue."

Jaworowicz noted that the presence or absence of these pregnancy-related conditions may indicate a different course or extent of hormone-regulated breast tissue proliferation and differentiation during pregnancy, but also may indicate distinct hormonal profiles that persist following pregnancy.

Although pregnancy conditions other than nausea and vomiting were not associated statistically with breast cancer risk, these were only preliminary findings, he added, based mainly upon whether women "ever" experienced these conditions vs. "never" during any of their pregnancies.

More nuanced experiences regarding these pregnancy-related characteristics will be the focus of future analyses, he said.

Evidence from the current analysis did suggest that the lower risk of developing breast cancer observed with nausea and vomiting was stronger as the symptoms became more severe, or persisted longer into pregnancy. A modest trend toward increased cancer risk was observed in premenopausal women who gained more than 40 pounds during pregnancy, compared to those who gained less than 23 pounds, said Jaworowicz, but the trend didn't reach statistical significance.

"Pregnancy is a time of drastic physiological changes, including rapid development and alterations in the breast tissue," he noted. "The rapidly changing anatomy of the breast makes it more susceptible to errors in DNA replication and/or repair, which may translate into breast cancer.

"Associated with these changes are the fluctuating hormonal profiles that must be kept in a delicate balance. If the correct ratios and relative amounts between these hormones are not maintained within a normal range, certain pregnancy-related outcomes may emerge, such as high blood pressure, glucose intolerance and gestational diabetes, eclamptic conditions with seizures and/or toxemia, or extremely severe nausea.

"These pregnancy-related factors may serve as indicators of underlying biological conditions that may influence a woman's lifetime risk for breast cancer."

By recognizing that pregnancy-associated medical outcomes may provide easily accessible signals about core changes in the female physiology, future studies should continue to investigate and dissect the intricate relationship that may exist between readily observational perinatal factors, physiological characteristics and cancer risk, Jaworowicz said.

"Subsequent analyses are planned to investigate the potential association between pregnancy characteristics and genetic polymorphisms of particular enzymes responsible for estrogen metabolism.

This will help us to elucidate the potential link between pregnancy-associated conditions, hormonal exposures and breast cancer risk."

Source: University at Buffalo

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