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Diabetes and Obesity Increase Risk for Breast Cancer Development

- Diabetes and obesity after age 60 are independent risk factors for breast cancer.
- Abnormally low blood lipids were found to increase breast cancer risk.
- Use of a specific diabetes drug is indicated in raising cancer risk.

SAN ANTONIO — Having diabetes or being obese after age 60 significantly increases the risk for developing breast cancer, a Swedish study has revealed. Data also showed that high blood lipids were less common in patients when diagnosed with breast cancer, while low blood lipids were associated with an increased risk.

Researchers of the study, reported at the 2011 CTRC-AACR San Antonio Breast Cancer Symposium, held Dec. 6-10, 2011, also looked at overall cancer incidence and discovered that use of one diabetes drug was associated with a lower rate of any cancer, while another was associated with an increased risk.

Researchers evaluated health care data from a region of 1.5 million people living in Southwestern Sweden to provide a comprehensive picture of cancer risk.

“We are looking at everybody, and we found that diabetes in adult women and obesity in women aged 60 and older significantly increased breast cancer risk,” said Håkan Olsson, M.D., professor in the departments of oncology and cancer epidemiology at Lund University. “This is useful information for women who want to know their risk and who can take steps to lower it.”

He and his colleagues examined records of 2,724 patients up to 10 years before they developed cancer and 20,542 patients who never developed the disease.

They found that obesity in women after age 60 increased risk for developing breast cancer by 55 percent. “At the most, 15 out of 100 obese women would get breast cancer compared with slightly less than 10 out of 100 in the general population,” Olsson said.

Women with diabetes had a 37 percent increased risk for developing breast cancer if their diabetes had been diagnosed up to four years before cancer was diagnosed.

Women with abnormally low levels of blood lipids (mostly cholesterol) had a 25 percent greater risk for developing breast cancer, while high levels of blood lipids appeared to be associated with a lower risk for breast cancer. The mechanisms behind these effects are unclear, and the finding needs to be replicated in a different population-based study, Olsson said.

Researchers also looked at the national drug prescription registry to examine the link between risk for all cancers and use of two diabetes drugs, glargine and metformin. In this study, investigators found that glargine use, which had been associated with increased cancer development in previous European studies, almost doubled the risk for development of any cancer, while metformin was linked to an 8 percent lower risk for cancer in patients with diabetes.

Olsson said more research is needed to clarify the specific cancers at increased risk. The number of patients in this study who developed breast cancer using these medications was too small to make any link to breast cancer risk, specifically, he said.

The study was funded by Sweden's Southern Health Care Region.

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The mission of the CTRC-AACR San Antonio Breast Cancer Symposium is to produce a unique and comprehensive scientific meeting that encompasses the full spectrum of breast cancer research, facilitating the rapid translation of new knowledge into better care for patients with breast cancer. The Cancer Therapy & Research Center (CTRC) at The University of Texas Health Science Center at San Antonio, the American Association for Cancer Research (AACR) and Baylor College of Medicine are joint sponsors of the San Antonio Breast Cancer Symposium. This collaboration utilizes the clinical strengths of the CTRC and Baylor and the AACR's scientific prestige in basic, translational and clinical cancer research to expedite the delivery of the latest scientific advances to the clinic. The 34th annual symposium is expected to draw nearly 8,000 participants from more than 90 countries.

Presenter: Håkan Olsson, M.D.

Abstract Number: P1-08-06

Title: Breast Cancer among Patients with Diabetes, Obesity and Abnormal Blood Lipids – A Population-Based Register Study in Sweden.

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Objective: To study how the incidence of breast cancer is related to diabetes, obesity or abnormal blood lipids.

Methods: Diagnosis of diabetes, obesity or abnormal blood lipids was studied 0-10 years prior to the diagnosis of cancer in 2724 cases of cancer and in 20542 controls matched regarding age, sex and domicile in a population based material. Diagnoses were obtained by using out and inpatient population based registries. Also the use of glargine and metformin was studied in relation to cancer risk in diabetic patients using the national pharmacy prescription registry. Conditional logistic regression was used for the analyses.

Results: Diabetes was significantly more common prior to diagnosis in patients with breast cancer with diabetes diagnosed 0-4 years prior to the cancer diagnosis. The findings remained after adjusting for obesity and high blood lipids. Obesity was significantly more common in patients with breast cancer above the age of 60 years in those where obesity was diagnosed close to the diagnosis of cancer. High blood lipids were significantly less common in patients with breast cancer close to diagnosis. Glargine use was associated with a doubled risk 2.88 (1.15-6.64) and metformin use with a lower risk of cancer in diabetic patients 0.92 (0.82-1.09).

	Diabetes	Obesity *	Blood Lipids
Breast Cancer A	1.18 (0.99-1.40)	0.70 (0.46-1.08)	0.79 (0.62-1.00)
Breast Cancer B	1.37 (1.10-1.71)	0.79 (0.52-1.19)	0.73 (0.56-0.95)
Breast Cancer C	1.11 (0.88-1.40)	0.78 (0.45-1.36)	1.02 (0.72-1.45)

A=univariate analysis for the time interval 90-1460 days prior to the diagnosis of the patient.

B=multivariate analysis for the time interval 90-1460 days prior to the diagnosis of the patient

C=multivariate analysis for the time interval 1461-3650 days prior to the diagnosis of the patient

*Above 60 years obesity and breast cancer 1.55 (0.96-2.50) and below 60 years 0.59 (0.29-1.21)

Conclusions: Within 4 years of diagnosis diabetes, obesity after age 60 and low blood lipids are associated with breast cancer. Glargine use seems to increase overall cancer risk.