Lobular Involution Protects Against Breast Cancer

BY BRUCE JANCIN

SAN ANTONIO — Young women with a benign breast biopsy showing complete lobular involution are at below-average risk of future breast cancer, according to a large prospective Mayo Clinic study.

This finding—that lobular involution constitutes a novel protective factor against breast cancer in young women with benign breast disease—is an important advance in the effort to better stratify breast cancer risk in the 1 million American women per year who undergo a biopsy showing benign breast disease, Dr. Karthik Ghosh said at the San Antonio Breast Cancer Symposium.

Moreover, the lobular involution findings open the door to new breast cancer chemoprevention strategies. Lobular involution may prove to be a factor that can be modified in order to reduce risk, noted Dr. Ghosh of the Mayo Clinic, Rochester, Minn.

She reported on 4,460 women aged 18-49 years in the Mayo Benign Breast Disease Cohort who underwent excisional breast biopsy for a palpable or mammographic abnormality that proved to be benign breast disease. These young women (average age at biopsy, 39 years) have subsequently been followed for a median of 20 years, during which 7% developed invasive breast cancer.

The initial benign biopsy showed complete lobular involution (defined as a 75% or greater reduction in the number and size of breast duct lobules) in 5% of the 4,460 young women. A total of 34% had no lobular involution at all, whereas 61% had partial lobular involution, in the range of 1%-74%.

In a multivariate analysis, the women with complete lobular involution had a 32% reduction in breast cancer rate compared with the general population, which for purposes of this study came from Iowa SEER (Surveillance, Epidemiology and End Results) registry data of an upper Midwest population that is demographically similar to that of the Mayo Clinic.

Women with partial lobular involution had a 43% greater than expected breast cancer rate during 20 years of follow-up, whereas those with no involution had a 72% increased rate ($P = .001$).

Lobular involution is a normal physiological process that happens with aging. Pathologists have long been aware of the phenomenon, but it entered the clinical arena only several years ago when investigators reported that lobular involution was associated with reduced risk of breast cancer in 8,736 participants in the Mayo Benign Breast Disease Cohort (J. Natl. Cancer Inst. 2006;98:1600-7).

Dr. Ghosh focused her new study on cohort members who were younger than age 50 when they were diagnosed with benign breast disease because breast cancer is the leading cause of cancer death in women aged 18-49 years. Moreover, breast cancer in this age group is associated with a higher recurrence rate and greater all-cause mortality than it is in older patients.

The women with complete lobular involution had a 32% reduction in breast cancer rate compared with women in the general population.

The study also examined the impact of conventional histologic categories of benign breast disease as well as family history.

The initial benign breast biopsy showed atypical hyperplasia in 2% of patients, nonproliferative breast disease in 72%, and proliferative changes without atypia in 26%. The subsequent risk of breast cancer was 6.9-fold greater in the young women with atypical hyperplasia than in the general Iowa population, 2-fold greater in those with proliferative disease without atypia, and 1.2-fold greater in those with nonproliferative disease.

A consistent finding was that coexistent complete lobular involution reduced the risks associated with all three types of histology, although larger numbers of patients need to be gathered before definitive statements on this score can be made, according to Dr. Ghosh.

Strong family history (defined in this study as at least one family member with breast cancer before age 50, or at least one affected first-degree relative and one other relative with breast cancer) essentially doubled the risks associated with proliferative disease without atypia and with nonproliferative disease. However, a strong family history didn't affect the already high breast cancer risk in young women with atypia. Women with nonproliferative disease and no family history of breast cancer weren't at increased risk of the malignancy.

In a separate presentation, Dr. Lynn C. Hartmann, head of the Mayo Clinic's benign breast disease study team, said that in order to standardize assessment of lobular involution and make it faster and more clinically practical, she and her colleagues have developed a quantitative involution measure based upon computerized calculation of lobular area and the number of acini per lobular unit.

"Future breast cancer cases are significantly more likely to have larger lobules with more acini," according to Dr. Hartmann, professor of oncology at the clinic.

The Mayo Clinic's prospective studies of benign breast disease are funded by the Department of Defense. ■

Older Black Women May Have Osteoporosis

BY HEIDI SPLETE

RIO GRANDE, P.R. — Approximately one in four elderly black women have osteoporosis, findings from a small study suggest.

Physicians should not ignore the possibility of osteoporosis in their older black female patients, although these women are not usually considered at high risk, compared with other demographic groups, said Dr. Sally P. Weaver, research director of the McLennan County Medical Education and Research Foundation, Waco, Texas.

Previous studies of osteoporosis in women have focused mainly on white women because of evidence of an elevated risk for osteoporosis in that population. Yet older women of any ethnicity are prone to age-related fractures if their bone mineral density (BMD) is low, she said in an interview.

Dr. Weaver and her colleagues measured BMD scans from the electronic health records of 44 black women aged 70 years and older. Patients with conditions that could affect bone turnover, vitamin D absorption, or calcium absorption were excluded from the study.

About 50% of the study participants met the criteria for osteopenia and 10% met the criteria for osteoporosis at the left femoral neck. Approximately 25% met criteria for osteopenia or osteoporosis at the lumbar spine. Overall, the left femoral neck had the lowest regional BMD, with an average T score of –1.23. Dr. Weaver presented the results in a poster at the annual meeting of the North American Primary Care Research Group.

Dr. Weaver had no financial conflicts to disclose. ■