

Fat-Filled Diets May Increase Breast Cancer Risk

BETHESDA, Md., March 20 -- Diets heavy in fat may modestly increase the risk of breast cancer for postmenopausal women, found a large cohort study that added evidence to a much-debated association.

Doubling fat intake from 20% to 40% was associated with an increased invasive breast cancer risk of 15%, said Anne C. M. Thiébaud, Ph.D., of the National Cancer Institute here, and colleagues, in the March 21 issue of the *Journal of the National Cancer Institute*.

This elevated risk was similar across types of fat -- saturated, monounsaturated and polyunsaturated -- and was particularly strong for women who used hormone replacement therapy, they found.

However, the modest risk association found in the study is outweighed by "robust evidence" for a strong link between body fat and postmenopausal breast cancer, according to an accompanying editorial by Meir J. Stampfer, M.D., Ph.D., and Stephanie A. Smith-Warner, Ph.D., both of the Harvard School of Public Health.

"Thus, from a prevention perspective, interventions to control the amount of body fat (e.g., promotion of exercise and caloric restraint) are likely to have a greater impact on breast cancer incidence than a reduction in fat intake," they wrote.

Previous studies as far back as the early 1940s have been inconclusive on the association between dietary fat and breast cancer, making it one of the most controversial links in nutritional epidemiology, Dr. Thiébaud and colleagues wrote.

Epidemiological studies have had problems with too narrow a range of dietary fat intakes, size, and adjustment for caloric intake.

So, the researchers examined food-frequency reports from the large, prospective National Institutes of Health-AARP Diet and Health Study.

All 188,736 women in the analysis were postmenopausal and ages 50 to 71 at the baseline food-frequency survey in 1995 to 1996. They were followed for breast cancer occurrence through cancer registries.

During the mean 4.4 years of follow-up, 4,255 women were diagnosed with cancer, of whom 3,501 had invasive breast cancer.

Women in the highest fat intake quintile with 40.1% energy from total fat had an 11% higher incidence of invasive breast cancer than women in the lowest quintile with 20.3% energy from total fat (434 versus 392 cases per 100,000 person-years).

The energy- and multivariate-adjusted hazard ratio for invasive breast cancer when fat intake doubled from 20% to 40% was 1.15 (95% confidence interval 1.05 to 1.26).

For the risk across intakes of major fat subtypes, the findings were generally significant and similar to those for total fat intake. The energy-adjusted hazard ratios for invasive breast cancer when percent energy doubled on a continuous scale were:

1.12 (95% CI 1.05 to 1.21) for saturated fat,

1.11 (95% CI 1.03 to 1.21) for monounsaturated fat,

1.10 (95% CI 1.02 to 1.18) for polyunsaturated fat,

1.07 (95% CI 1.01 to 1.12) for animal fat, and

1.06 (95% CI 1.01 to 1.12) for vegetable fat.

Risk estimates were virtually unchanged after adjustment for other covariates. After correction for measurement error in fat and energy intakes, the hazard ratios with a twofold increase of percent energy from fat on the continuous scale were:

1.32 (95% CI 1.11 to 1.58) for total fat,

1.20 (95% CI 1.07 to 1.34) for saturated fat,

1.21 (95% CI 1.05 to 1.40) for monounsaturated fat, and

1.34 (95% CI 1.06 to 1.69) for polyunsaturated fat.

However, in accord with previous studies suggesting saturated fat may be most strongly related to breast cancer risk, only saturated fat intake remained significantly linked to risk when fat subtypes were mutually adjusted (HR 1.17 for twofold increase, 95% CI 1.02 to 1.34).

Nonetheless, because saturated and monounsaturated fat intakes were highly correlated, the researchers said "the association we found in the NIH-AARP cohort was not clearly driven by a specific fat subtype or food group."

The associations were not modified by family history of breast cancer, history of breast biopsy, body mass index, smoking history, and alcohol consumption. However, menopausal hormone therapy had an impact.

Women not using hormone replacement therapy at baseline had a lower hazard ratio for invasive breast cancer in every fat intake quintile compared with women who were using menopausal hormone therapy.

Among the findings, the researchers reported:

Nonusers had hazard ratio of 1.25 (95% CI 1.07 to 1.46) for highest versus lowest total fat intake quintile,

Users in the lowest intake quintile had 1.72-fold higher risk (95% CI 1.47 to 2.01) compared with nonusers in the same intake category, and

The difference in risk between users and nonusers did not increase with increasing fat intake ($P=0.95$ for trend).

These findings support hormones as a mechanism by which dietary fat affects breast cancer risk, Dr. Thiébaud and colleagues said. Other potential mechanisms, assuming the association is causal, may include modulation of immune function and regulation of gene expression, they said.

The researchers acknowledged that unmeasured confounders and measurement error could have influenced the findings, but concluded, "The hypothesis that dietary fat increases the risk of invasive breast cancer remains viable and warrants continued investigation."

However, Drs. Stampfer and Smith-Warner were not so certain that the associations found in the study are clinically relevant.

"On the basis of the main findings from the NIH-AARP Diet and Health Study and other studies described [in the editorial]," they wrote, "it appears that dietary fat intake during postmenopausal years has little, if any, impact on breast cancer risk, although intake may be associated with higher risks of breast cancer for specific population subgroups, such as menopausal hormone users or younger women."

They suggested that adiposity is a more important factor in breast cancer risk.