Breast density found to be significant cancer risk

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Women with dense breasts are five times more likely to develop cancer than those whose breasts have a lot of fatty tissue, according to a groundbreaking Canadian study.

The research shows that breast density -- which has long been known to affect the quality of X-ray mammograms -- is actually a risk factor in itself.

Norman Boyd, a principal investigator at the Campbell Family Institute for Breast Cancer Research at Princess Margaret Hospital in Toronto and lead author of the study, said the findings leave no doubt that breast density is an "extremely important" factor that accounts for up to one-third of all cases.

(The single most important risk factor for developing breast cancer is being a carrier of the BRAC1 or BRAC2, the so-called breast cancer genes; for others, it is age.)

The research, published in today's edition of the New England Journal of Medicine, involved 1,112 women who had breast cancer and an equal number who did not.

Researchers found that women whose breast density was 75 per cent or more were 4.7 times more likely to develop cancer than those with density under 10 per cent. Women with dense breasts were 18 times more likely to find a cancerous tumour within 12 months of a negative mammogram.

This underscores that cancer is actually hardest to detect in women with the highest risk, a double-whammy that will likely result in a serious rethinking of screening.

Dr. Boyd said the size of a woman's breasts has no bearing on density, and women cannot determine this measure on their own.

Density is actually defined as the percentage of breast tissue that is not clearly visible on an X-ray mammography. Breast tissue is made up of fat, supporting tissue (stroma), and the epithelium that forms ducts and lobules. X-rays pass through these tissues differently. As a result, fat appears dark on a mammogram while denser tissues appear light -- making it difficult to spot tumours.

Density decreases with age and on average, women lose about 1 per cent of their breast density each year. Density is also affected by hormones and hormone-replacement therapy in particular.

Martin Yaffe, senior scientist in imaging research at Sunnybrook Health Sciences Centre in Toronto and co-author of the paper, said the findings are not all bad news.

In fact, the research opens up a whole new avenue of prevention because whatever factors influence breast density -- hormones, diet, exercise, environmental exposures -- can likely be altered.

Verna Mai, director of screening at Cancer Care Ontario, who was not involved in the research, said the findings are "very important for women because they provide us with new and better information."

She said that, for now, it would be prudent for women with dense breasts to be tested more often, and that the agency is also examining the role of new technologies.