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**Fertility treatments may up breast cancer risk**

Infertile women who had undergone controlled ovarian stimulation had more dense breast tissue than those who had not received any hormone treatment

**London:** Infertility and hormonal fertility treatments may influence the amount of dense tissue in the breast and increase the risk factor of developing breast cancer, a new study has found. Researchers at Karolinska Institutet in Sweden found that women with a history of infertility had denser breasts than other women. The association was more pronounced in women who had undergone controlled ovarian stimulation (COS), the hormone treatment required for in vitro fertilization.

“The results from our study indicate that infertile women, especially those who undergo COS, might represent a group with an increased breast cancer risk,” said lead author Frida Lundberg from Karolinska Institutet. Breast tissue is composed of two types of tissue: dense, fibroglandular and non-dense, fatty tissue. Women with extremely dense breasts have a four- to sixfold higher risk of developing breast cancer than women with non-dense breasts, previous research has found.

In this study, women with a history of infertility were found to have higher absolute dense volume—that is more dense, fibroglandular breast tissue. Among infertile women, those who had undergone COS had higher absolute dense volume than those who had not received any hormone treatment. Hormone replacement therapy, like COS, increases oestrogen and progesterone levels and has been suspected to increase breast cancer risk.

This is the first population-based study to investigate the effect of infertility and hormone stimulation on mammographic density, which may be a useful marker for the effect of hormonal fertility treatment on breast cancer risk, especially in women below the age at which breast cancer is normally diagnosed (50 years and older).

The researchers selected 43,313 women aged between 40 and 69 years who had mammograms as part of the KARolinska MAmmography project for risk prediction of breast cancer between 2010 and 2013. The women also responded to a questionnaire including questions about age, height, weight, smoking status, alcohol consumption, history of infertility and family history of breast cancer.

To assess associations between infertility, hormonal fertility treatments and mammographic density, the researchers first compared mammographic density levels between fertile and infertile women. They then compared infertile women who had never received hormonal fertility treatment to those who had. They found a stronger association between COS and mammographic density in older women, which may point to a potential long-term effect of COS on the breast tissue. Whether differences in breast density may affect potential breast cancer risk remains unknown.

The study was published in the journal *Breast Cancer Research*.