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**The correlation between
infertility treatments and
post-reproductive breast
cancer**

Fertility drugs, clomiphene citrate (CC) and follicle stimulating hormone (FSH), are taken during controlled ovarian stimulation (COS) stage of in-vitro fertilization (IVF) to mimic the natural rise of progesterone and estrogen. The objective is to find the correlation between younger women undergoing fertility treatments and the increased risk of breast cancer post-treatment. In a cross-sectional study done with a little over 43,000 women, 8,963 were infertile: 1,576 went through COS, 1,429 had hormonal stimulation without COS and 5,958 didn't receive any hormonal fertility treatment), researchers found that women with a history of infertility and had COS had a higher absolute dense and non-dense volume, possibly due to the effect of estrogen promoting excessive growth of breast tissue: fibroglandular tissue in the breast is the target for tumor development. Due to both the nature of the tissue and increased difficulty to screen, women with dense breasts have a 4-6x higher risk of breast cancer. In a study with 3,091 women (case and control) younger than 50 years old with a sister diagnosed with breast cancer, evaluations were done to see if treatment induced a pregnancy that lasted 10+ weeks. Out of 288 final participants, 193 took CC only, 29 took FSH only, and 66 took both. Though overall data suggests there wasn't a significant increased risk, women who used the fertility drugs and conceived were at a higher risk of getting young-onset breast cancer. In yet another study, a long-term risk after use of progesterone and nulliparous women exposed to gonadotropins was found. There are inconsistent findings in the case studies conducted due to various limitations, for example, the number of cases observed and the length of follow up. Future research should address these limitations while focusing on each drug and combination.

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