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Fertility Medications, IVF & Cancer Risks A Patient Guideline

Introduction:

Most studies have not found that fertility treatment causes cancer. Some studies have found small increases in certain cancers after treatment. These findings do not prove that the medicines or IVF caused the cancers. The chance of developing most of these cancers remains low.

Underlying Risks to the Infertile Patient:

There are several reasons why answering the question of whether fertility medications or IVF increase the risk of cancer is so challenging:

- Certain infertility subgroups, such as women who never conceive, or have endometriosis, obesity, or who do not ovulate consistently (e.g., PMOS/PCOS), have an underlying increased risk of some cancers.
- Determining if fertility medications increase the risk for cancer is difficult because infertile women are often given multiple medications, at different dosages, and for different durations.
- When deciding if fertility medications increase the risk of cancer, the best control group should be infertile women who did not receive fertility medications, and not fertile women.
- Control populations are more likely to take hormone contraception, which reduces the risks of some cancers compared to women trying to conceive.
- Infertile women undergo more surveillance, perhaps leading to higher cancer detection rates.
- Fertility medications and IVF may be “associated” with cancer and not necessarily “causative.”

Cancers That May Occur More Often in Infertile Women Provided Fertility Medications or IVF

Invasive Ovarian Cancer

The lifetime risk of invasive ovarian cancer in the US is 1/91 (1.1%). Fertility treatment may be linked to a small increase, but studies cannot tell how much is due to treatment rather than infertility, endometriosis, or not having children. According to one estimate, if 3,000 women are given fertility medications (e.g., CC, Letrozole, FSH, HMG) and are followed for 33 years, there might be 3 additional invasive ovarian cancer cases in these women. These risks remain very low.

Borderline Ovarian Cancers:

The lifetime risk of borderline ovarian cancer is likely 1/500 (0.2%). Women who undergo IVF have an increased risk of borderline ovarian cancers equating to a 1/380 (0.3%) lifetime risk. Although IVF increases the relative risk, the actual occurrence rate remains very low.

Uterine (Endometrial) Cancer:

The lifetime risk for endometrial cancer is 1/32 (3.1%). The estimated lifetime risk for endometrial cancer in infertile women is 1/25 (4.1%). Studies have not shown that fertility treatment itself raises this risk.

Thyroid Cancer:

The lifetime risk of thyroid cancer for women in the US is 1/59 (1.7%). The lifetime risk of thyroid cancer in infertile women is increased to 1/45 (2.2%). Any risk of thyroid cancer in the infertile woman is likely caused by their infertility and not the use of fertility medications or IVF.

Cancers That Do Not Occur More Often in Infertile Women Provided Fertility Medications or IVF

Breast Cancer:

It would appear there are no increased risks of breast cancer in women receiving fertility medications or those who underwent ART.

Colon Cancer:

The risk of colorectal cancer is not increased in women given fertility medications or who underwent IVF. In fact, the risk of colon cancer in infertile women seems to be lower than the general population.

Non-Hodgkin Lymphoma:

There is insufficient data suggesting that fertility medications increase the risk of Non-Hodgkin Lymphoma

Cervical Cancer:

There is no data to suggest fertility medications increase the risk of cervical cancer. Several studies show a decreased risk.

Malignant Melanoma:

Infertile women do not seem to be at an increased risk of malignant melanoma. Studies examining risk after IVF show no consistent increase.

Specific Medication Recommendations

Clomiphene Citrate:

There appears to be no significant increased risk of ovarian or breast cancer when CC is used for no more than 7-10 cycles. It is generally recommended that women be exposed to no more than 10 cycles of clomiphene citrate.

Summary Comments

Infertile women are at an increased risk for some cancers. For most women, the chance of developing cancer because of fertility treatment appears small. A history of infertility does not mean that a woman will develop cancer. Your personal risk also depends on age, family history, weight, endometriosis, ovulation patterns, and whether you have given birth.

Reference (With 119 Studies Supporting the Conclusions):

Practice Committee of the American Society for Reproductive Medicine. Fertility drugs and cancer: a guideline. Fertil Steril. 2024 Sep;122(3):406-20. doi:10.1016/j.fertnstert.2024.03.026.