# Fertility & breast cancer

# Breast cancer treatment: determined by several factors

- subtypes
- stage
- any gene alteration
- age
- menopausal status

# How do breast cancer treatments affect fertility?

| Treatment | Impact |
| --- | --- |
| (localised)<br>• Surgery<br>• Radiotherapy | No impact fertility but might affect breast feeding |
| (systemic)<br>• Chemotherapy<br>• Immunotherapy<br>• Targeted therapy<br>• Hormone therapy | May affect periods and ovarian function<br>(treatment related amenorrhea TRA)<br>(primary ovarian insufficiency POI) |

# How chemo affects fertility

- Does depend on the regime and dose
- **Egg cells (oocytes)** directly.
- **Supporting ovarian tissue** that helps eggs mature.
- **Hormone-producing cells** in the ovaries.
- This damage can reduce both the number and quality of remaining eggs.

- can damage the ovaries, reducing the number and quality of eggs. This may lead to:
- **Temporary infertility**: Periods stop during treatment but return afterward.
- **Permanent infertility**: Ovaries stop functioning permanently (premature ovarian insufficiency/early menopause).
- **Reduced fertility**: Menstrual cycles return, but fertility may still be lower than before treatment.

# immunotherapy

- Current evidence suggests that immunotherapy is **less likely to directly damage the ovaries** than many chemotherapy drugs. However, concerns remain because immunotherapy can:
- Trigger immune-related inflammation affecting hormone-producing organs.
- Cause endocrine side effects involving the thyroid, pituitary gland, or adrenal glands.
- Alter menstrual cycles and reproductive hormone levels.
- Potentially affect ovarian function indirectly through immune-mediated mechanisms.
- Because many immunotherapy agents are relatively new, long-term fertility outcomes are still being studied.

# Hormone therapy

- **Tamoxifen**
- **Aromatase inhibitors** (such as letrozole, anastrozole, exemestane)
- **Ovarian suppression medications** (such as goserelin or leuprorelin)
- Treatment often lasts **5–10 years**, which can have important implications for fertility

# Other factors affecting return of periods

- Age (the most crucial factor)
- Pre-treatment ovarian reserve
- Menopausal status
- germline *BRCA* pathogenic variants
- Ethnicity - black women slight increase in amenorrhea compared with white women
- BMI
- Smoking / alcohol / recreational drugs

# Factors affecting fertility preservation options

- Age
- Severity of disease
- Cancer stage
- Urgency of cancer treatment
- Marital / relationship status
- Future pregnancy desire

# Fertility preservation options

- Egg freezing
- - Random start ovarian stimulation
- Controlled ovarian stimultation

# How does fertility preservation differ when cancer diagnosis

# Embryo freezing

# Psychological impact

- Anxiety about future childbearing.
- Grief over potential loss of fertility.
- Depression and emotional distress.
- Feelings of loss of control over life plans.
- Concerns about femininity, sexuality, and identity.
- Relationship stress related to family planning decisions.

# Fertility MoT

- AMH
- AFC
- Pelvic uss