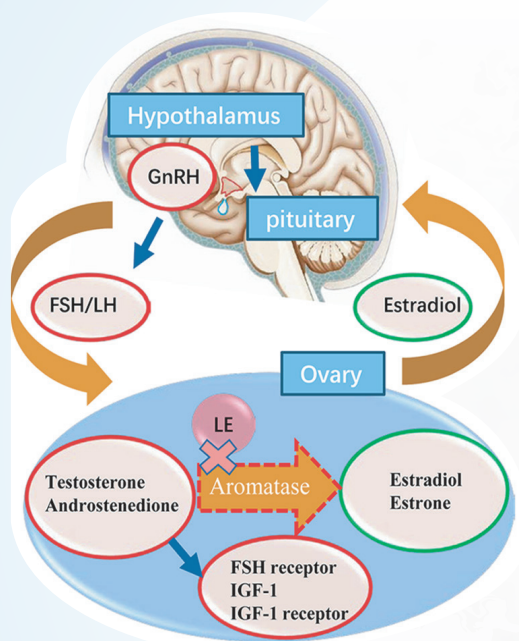


Letrozole, an aromatase inhibitor that blocks estrogen synthesis by inhibiting the final step of the estrogen biosynthetic pathway, has been used in the applications of a wide range of infertility settings. This mini review focuses on the applications and mechanisms of letrozole for female infertility and various questions are put forward about how letrozole could be more effectively used.



## Ovulation Induction (OI)

First-line agent and superior to clomiphene citrate (CC) in PCOS:

- Higher ovulation, pregnancy, and live birth rates.
- Lower risk of multiple pregnancy & anti-estrogenic endometrial effects.

## Unexplained Infertility

- Comparable pregnancy outcomes to CC or gonadotropins.
- Promotes endometrial receptivity.
- May reduce risk of multiple gestation & Ovarian Hyperstimulation Syndrome.

## In IVF/ICSI & Controlled Ovarian Stimulation

- Enhances follicular androgen milieu → better FSH response.
- Reduces gonadotropin dose and OHSS risk.
- Cost-effective adjunct in poor or high responders.

## Fertility Preservation

- Letrozole + FSH protocol safely lowers estradiol peaks.
- Effective in hormone-sensitive cancers (breast, endometrial).
- Maintains oocyte yield and pregnancy outcomes comparable to standard controlled ovarian stimulation.

## Safety

- Short half-life of letrozole ensures quick clearance before implantation, reducing fetal exposure.

## Conclusion

Letrozole is a safe, effective, low-cost, and versatile agent in female infertility management. It is now established as first-line therapy for PCOS-related anovulation and an essential adjunct in ART and fertility preservation.

Ref: Yang, Ai-Min et al. "Letrozole for Female Infertility." *Frontiers in endocrinology* vol. 12 676133. 16 Jun. 2021, doi:10.3389/fendo.2021.676133

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# The first line therapy for ovulation induction in women suffering from anovulatory infertility





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## Drug Review

### Anovulation & Infertility

- ♀ Anovulation is a common cause of infertility. It's caused by hormonal imbalances, and the main sign of it is having irregular periods. Anovulation can often be treated with lifestyle changes and/or medication.
- ♀ In general, infertility is defined as not being able to get pregnant (conceive) after one year (or longer) of unprotected intercourse. Because fertility in women is known to decline steadily with age, some providers evaluate and treat women aged 35 years or older after 6 months of unprotected intercourse.

### Guideline Recommendations

-  Letrozole Should be considered as first line therapy for OI in Patients with PCOS & BMI > 30 because of increased LBR Compared to Clomiphene Citrate .
-  Letrozole should be first line pharmacological therapy to improve fertility outcome in women with PCOS & an anovulatory infertility with no other infertility factors.
-  Letrozole as the first line treatment due to its higher ovulation pregnancy & Live birth rate as well as lower multiple pregnancy rate.
-  Letrozole are first line treatment of anovulatory infertility in women with PCOS

### Hope for Anovulatory Infertility of PCOS Patient

- ♀ Letrozole is an orally-active aromatase inhibitor, with good potential for ovulation induction. Many researchers have studied this drug as an option for ovulation induction.
- ♀ Inhibition of aromatase enzyme leads to decrease in estrogen levels, resulting in more follicle stimulating hormone (FSH) release, which results in follicular growth.
- ♀ Aromatase enzyme inhibitors also cause a local increase of ovarian androgens which increases the follicular sensitivity to FSH and stimulation of insulin-like growth factor (IGF)-I. FSH and IGF-I are both essential for follicular maturation.

### Evidence Based Result

- ♀ Better pregnancy outcomes and higher live births compared to CC in PCOS patients
- ♀ Effective even in patients with CC-resistant PCOS
- ♀ No anti-estrogenic effects on endometrium & cervical mucus (reduces hot flushes & other perimenopausal symptoms)
- ♀ Mono-follicular development and lower multiple pregnancies
- ♀ Safety established in clinical studies
- ♀ Maintains physiological FSH levels and lowers multiple pregnancy rates

Ref.: 1. <https://www.sciencedirect.com/science/article/pii/S1110569018300554> 2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3148573/>  
3. <https://www.ijrcog.org/index.php/ijrcog/article/view/7154>