# Ovulation Induction Drugs

| Drug | MOA | Indication | Administration | Side effect |
|---|---|---|---|---|
| **1. Anti-estrogens (SERMs):**<br>Clomiphene<br>Tamoxifen | **On hypothalamus**: it ↓the negative feedback of endogenous estrogen on hypothalamus → ↑ pulses of GnRH → ↑ gonadotrophin production [FSH & LH] → growth maturation & rupture of follicles → **OVULATION.**<br>**On pituitary**: it ↑the response of gonadotrophins to GnRH. | Given to: **normogonadotrophic patients,** no problems in the ovaries or pituitary.<br>The success rate for ovulation 80% & pregnancy 40% . The difference between 2 rates is due to the antiestrogenic effects of clomiphene on uterus, cervix & vagina. | **i.**Clomiphene given: 50 mg/d for 5 days from **5th day** of the cycle to the **10th day**.<br>**ii. If no response**, the dose is doubled for 5 days again from 5th to10th day<br>iii. The drug **can be repeated** not more than **6 cycles**. | Hot flushes & breast tenderness (estrogenic side effect).<br>Gastric upset (nausea and vomiting).<br>Visual disturbances (reversible).<br>**↑nervous tension & depression**.<br>Skin rashes.Fatigue. Weight gain.<br>**Hair loss** (reversible).<br>Incidence of **multiple ovulation** → twins in10% birth. |
| | The difference between **tamoxifen** & **Clomiphene** is that **tamoxifen is non steroidal.** | Used in palliative treatment of hormone-dependent/estrogen receptor- positive advanced breast cancer (patients that show positive for having estrogen receptors on their cancer cells). | | |
| **2. Gonadotropins (LH/FSH):**<br>MENOTROPIN<br>PREGNYL | **Human Menopausal Gonadotrophins (hMG):** extracted from postmenopausal urine → contains LH & FSH → MENOTROPIN.<br>**Human Chorionic Gonadotrophins (hCG):** extracted from urine of pregnant women →contains mainly LH → PREGNYL. | Stimulation & induction of ovulation in infertility 2ndry to gonadotropin deficiency (pituitary insufficiency). | During the first 14 days starting from day 2-3 until 14 we give FSH. At the 14th day we give LH to induce ovulation (time of the LH surge).<br>SO: hMG (MENOTROPIN) is given IM at day 2-3 of the cycle for 7-14 days followed by hCG (PREGNYL) IM at 36 hrs. Prior to: intrauterine insemination or intercourse. | **FSH related:** Fever, Ovarian enlargement (hyper stimulation), **Multiple Pregnancy** (approx. 20%).<br>**LH related:** Headache & edema. |
| **3. GnRH agonists**<br>Leuprolin<br>Goserelin | Two types of GnRH agonist:<br>**a)Type is PULSATILE** → Mimic native GnRH : stimulate gonadotropin release.<br>**b)Type is CONTINOUS** → Block GnRH Receptors.<br>**Uses:** Given continuously, when gonadal suppression is desirable in case of:<br>precocious puberty<br>advanced breast cancer in women<br>prostatic cancer in men | | GIT disturbances, abdominal pain, nausea, Headache.<br>Hypoestrogenism on long term. Because the continuous use of GnRH will cause the pituitary to be desensitized to GnRH →:<br>Hot flashes.<br>**↓Libido.**<br>Osteoporosis.<br>**Vaginal bleeding.**<br>Rarely **ovarian hyperstimulation** (ovaries swell & enlarge). | |
| **4. Dopamine receptor antagonists (receptor D2 ):**<br>Bromocreptine | D2 R Agonists → -ve PRL (prolactin) secretion from anterior pituitary glands. | Female infertility secondary to hyperprolactinaemia (hypogonadotrophic). | GIT disturbances; N&V, constipation.<br>Headache dizziness & **orthostatic hypotension**.<br>Dry mouth & nasal congestion. Insomnia. | |