Ovulation Induction

Dr DEEPA SETHIA

(Sr Consultant OBS & GYNAE), Director: Getwell Nursing Home , Greater Faridabad Haryana

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I. INTRODUCTION

OI medications can be used to promote the growth of dominant follicles. They may also act as estrogen antagonists or reduce insulin sensitivity. Laparoscopic ovarian drill (LOD), can be used as a second-line treatment for this condition.

General Physiology

About 25% of cases involving female infertility are caused by ovulatory disorders. A complex feedback mechanism is required to mature an oocyte. This requires coordination between the anterior pituitary and hypothalamus. Infertility patients often present with dysregulation in one or more of these pathways. This can lead to ovarian dysfunction and even ovarian failure.

Infertility Workup

To ensure that there aren't any underlying conditions, such as endocrine disorders, a complete evaluation must be done before initiating infertility treatment. A complete history of your menstruation, obstetrics and surgeries should be taken during the consultation. Also, any current medication or drug use that could affect fertility must also be assessed. A laboratory evaluation will include an assessment of thyroid function, hormonal levels, estrogen levels on day 3, day 21 and sexually transmitted infection, as well as hormone levels for ovarian function. Tubal patency can be confirmed by saline-infusion sonohysterograms or hysterosalpingograms. As approximately half of infertile couples are male, it would be negligent not to examine the men's semen.

Classification of Ovulatory Dysfunction

The World Health Organization (WHO) has developed a classification system to help with infertility. Gonadotropin levels and estrogen levels determine ovarian insufficiency.

Table 1
WHO Classifications of ovulatory dysfunction

Group	Gonadotropin levels	Estrogen secretion	Cause
I	Low	Low	Hypothalamic-pituitary failure
II	Normal	Normal	Hypothalamic-pituitary-ovarian axis failure
III	High	Low	Ovarian failure

Medications Used for OI

Clomiphene Citrate

Mechanism and Clinical Outcomes

Clomiphene citrate (CC) has been used to treat oligomenorrhea and anovulation for the past 40 years. It is a selective estrogen receptor modator (SERM). CC competes with natural estrogen's receptors in the pituitary and hypothalamus,

interfering with negative feedback signalling. CC binds more strongly to the estrogen receptors of the hypothalamus than natural estrogen for a longer time, blocking estrogen replenishment in that area. GnRH, FSH, and other hormones are released in a hypoestrogenic state. This makes it essential that the HPO axis is intact to ensure a proper response to CC administration. An excessive amount of FSH can cause the ovary hyper stimulated, causing multiple follicles and a number of follicles.