Assessment of Ovulation in Polycystic Ovary Syndrome after Treatment with Tamoxifen

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES CONT.

LIST OF FIGURES

LIST OF ABBREVIATIONS

ACTH	Adreno Cortico Trophic Hormone
ALT	ALanine amino Transferase
BMI	Body mass index
CAH	Congential Adrenal Hyperplasia
CC	Clomiphene citrate
CL	Corpus luteum
CT	Computed Tomography
CYP	CYtochrome P
DHEAS	Dihydroepiandrostenedione
DM	Diabetes mellitus
DNA	Deoxyribonuclear Acid
EGF	Epidermal growth factor
ESHRE/ASRM	European Society for Human Reproduction and Embryology and the American Society for Reproductive Medicine
ER	Estrogen Receptor
FAH	Functional Adrenal Hyperandrogenism
FDA	Food and Drug Administration
FOH	Functional Ovarian Hyperandrogenism
FSH	Follicle Stimulating Hormone
GH	Growth Hormone
GnRH	Gonadotropin-Releasing Hormone
HCG	human Chorionic Gonadotropin
HMG	Human Menopausal Gonadotropins
HS	High-Significant

LIST OF ABBREVIATIONS CONT.

IGF	Insulin like Growth Hormone
LH	Luteinising Hormone
LOD	Laparoscopic Ovarian Drilling
MRI	Magnetic Resonance Imaging
Nd-YaG	Neodymium – Yttrium – Aluminnum – Garent laser
NIH	National Institutes of Health
NS	Non- Significant
OHSS	Ovarian Hyperstimulation Syndrome
OWR	Ovarian Wedge Resection
PAI	Plasminogen Activator Inhibitor
PCOS	Polycystic ovary syndrome
PKC	Protein Kinase C
PRL	Prolactin
S	Significant
SD	Standard Deviation
SHBG	Serum sex Hormone-Binding Globulin
SPSS	Statistical package for Social Science
TGF-α	Transforming Growth Factor-α
TGF-β1	Transforming Growth Factor-β1
TSH	Thyroid stimulating hormone
WHO	World Health Organization
β HSD	β Hydroxy Steroid Dehydrogenase

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To my father, my mother,

and All my family

Abstract

Polycystic ovary syndrome (PCOS) is an endocrine disorder that affects approximately 5% of all women. It occurs amongst all races and nationalities, is the most common hormonal disorder among women of reproductive age, and is a leading cause of infertility.

The principal features are weight problems, lack of regular ovulation and/or menstruation, and excessive amounts or effects of androgenic (masculinizing) hormones. The symptoms and severity of the syndrome vary greatly among women. While the causes are unknown, insulin resistance, diabetes, and obesity are all strongly correlated with PCOS.

Common symptoms of PCOS include: (i) Oligomenorrhea, amenorrhea (irregular, few, or absent menstrual periods). (ii) Infertility, generally resulting from chronic anovulation (lack of ovulation). (iii) Hirsutism (excessive and increased body hair, typically in a male pattern affecting face, chest and legs). (iv) Hair loss appearing as thinning hair on the top of the head. (v) Acne, oily skin, seborrhea. (vi) Obesity: one of two women with PCOS is obese. (vii) Depression and deepening of voice.

The use of tamoxifen for ovulation induction may be considered as an alternative to clomiphene citrate especially in cases resistant to clomiphene citrate. Sixty female patients with polycystic ovarian disease with mean age 30 years completed the study. All patients in the study were complaining of inability to conceive and menstrual irregularities in the form of oligomenorrhea or amenorrhea. These 60 patients are divided the three groups each group includes 20 patients. The three groups are namely: *Group A*: includes 20 patients who take 10 mg Tamoxifen per

day from 3-7 day of the menstrual cycle. *Group B*: includes 20 patients who take 20 mg Tamoxifen per day from 3-7 day of the menstrual cycle, and *Group C*: includes 20 patients were controlled.

The features of the three groups are described by, personal characteristics (age, weight, .. etc), the clinical characteristics (FSH, LH DHEAS level, …etc), complaints (infertility, oligomenorrhea, and hirsutism), and finally compared regarding the clinical outcome (ovulation and presence of leading follicles). From our results we can conclude that: Tamoxifen 20 mg given patients group shows the success of ovulation by 30 %. Tamoxifen 10 mg given patients group shows the success of ovulation by 20 %. On the other hand, the Control group did not show any success.

Key Words :

Luteinising Hormone - Standard Deviation - Protein Kinase C .

INTRODUCTION

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders in women of reproductive age. The overall prevalence among women in this age group is between 4% and 8%, although the prevalence may be as high as 30% in women with secondary amenorrhea, 75% in women with oligomenorrhea, and 90% in women with hirsutism ***(Pedersen et al. 2007).***

In 1935, Stein and Leventhal published their report of seven women with amenorrhea, hirsutism, obesity, and enlarged polycystic appearing ovaries. Since then, much has been learned about this complex disorder **(*Stein and Levanthal 1935*).**

It is now well recognized that women with this syndrome not only have reproductive health issues but their metabolic and cardiovascular health is also affected. Until recently, there has been no universally accepted definition for PCOS. In 2003, an international consensus group proposed that the diagnostic criteria for PCOS are ovarian dysfunction evidenced by oligomenorrhea or amenorrhea and clinical evidence of androgen excess (e.g., hirsutism and acne) in the absence of other conditions that can cause these same signs and symptoms.

Polycystic ovaries, as defined by ultrasonography (the presence of 12 or more follicles in each ovary measuring 2 to 9 mm in diameter, and/or ovarian volume > 10 mL) should also be considered as one of the possible diagnostic criteria for PCOS.

It is important to note that polycystic ovaries need not be present to make the diagnosis of PCOS. In fact, Clayton observed that 23% of normal women met the sonographic criteria for polycystic ovaries ***(Clayton et al. 1989).***

Aim of the Work

The aim of the present work is to:

- Assess the effect of tamoxifen on the follicle growth & ovulation rate.
- Compare 10 mg vs. 20 mg tamoxifen as dose for induction.
- Compare tamoxifen vs. controlled.

DEFINTION OF PCOS

The classic syndrome originally was described in 1935 by Stein and Leventhal as the association of amenorrhea with polycystic ovaries in women, of whom about two thirds were hirsute, and one-half was obese.

The term PCOS was introduced upon recognition of a broader spectrum of clinical symptoms and ovarian histology, including stromal hyperplasia with multiple sub capsular follicles. ***(Goldzieher et al., 1996)***

Approximately two-thirds of patients with classic PCOS have hirsutism (or hirsutism equivalents, acne vulgaris or pattern alopecia), two-thirds have an ovulatory symptoms (manifested as amenorrhea, oligomenorrhea, dysfunctional uterine bleeding, or unexplained infertility), and one half are obese.

Thus, only about one-third of classic cases have the full-blown clinical picture. The laboratory diagnostic criteria for classic PCOS require biochemical evidence of Hyperandrogenism with either a polycystic ovary by ultrasound or an increased serum level of lutenizing hormone (LH) to follicle-stimulating hormone (FSH) ratio. These criteria have proven not to necessarily coincide ***(Colleen et al., 2005).***

In 1990, the National Institutes of Health (NIH) Conference on PCOS considered the implications of recent research findings for the diagnosis. Fifty percent to 60% of those present concurred that the criteria for PCOS should consist of chronic anovulation with clinical or biochemical signs of Hyperandrogenism that was not explained by other etiologies. This recognized the spectrum of the syndrome to include androgen excess in the absence of ultrasonographic and gonadotropic abnormalities (here termed non classic PCOS) ***(Rosenfield, 1999)***.