Predictors of success of laparoscopic ovarian drilling in patients with Clomiphene Citrate resistant polycystic ovarian disease

Thesis

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BY

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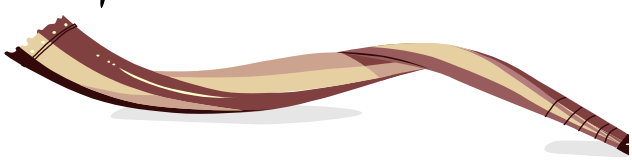

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AMH	Anti-mullerian hormone
Anti-A	Anti-androgen.
ARTs	Artificial reproductive techniques
ASRM	American Society for Reproductive Medicine
AUC	Area under the curve
BMI	Body mass index
CBC	Complete blood picture
CC	Clomiphene citrate
CCR-PCOD	Clomiphene citrate resistance- Polycystic ovarian disease
CI	Confidence interval
CVD	Cardiovascular disease
DM2	Diabetes mellitus type 2
E2	Estradiol
ELISA	Enzyme linked Immunosorbent assay
ESHRE	European Society of Human Reproduction and Embryology
FAI	Free androgen index
FDA	
FSH	Follicle stimulating hormone
GnRH	Gonadotropin releasing hormone
HCG	Human chorionic gonadotrophin
HOMA RI	Homeostasis model assessment resistance index
IUI	Intra-uterine insemination
IVF	In-vitro fertilization

List of abbreviation (Cont…)

LH	Luteinizing hormone
LOD	Laparoscopic ovarian drilling
LOS	Laparoscopic ovarian surgery
MF	Metformin
NAC	N-acetylcysteine
OCP	Oral contraceptive pills
OHSS	Ovarian hyperstimulation syndrome
PCOS	Polycystic ovarian syndrome
POF	Premature ovarian faliure
PRL	prolactin
PSV	Peak systolic velocity
ROC	Receiver operating characteristic curve
SD	Standard deviation
SE	standard error
SHBG	Sex hormone binding globulin
VEGF	Vascular endothelial growth factor
WHO	World health organization

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Introduction

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women of reproductive age and the most common disorder of ovarian function in premenopausal women ***(Slowey, 2001).***

The prevalence of PCOS cannot be determined with precision because it depends on the definition. A strict research-based definition that relies on endocrine characteristics is associated with a 3% prevalence of PCOS ***(Guzick, 1990)*** and for the clinical definition using chronic anovulation plus androgen excess, the prevalence of PCOS is 5-10% of premenopausal females ***(Slowey, 2001).***PCOS represents most oligo-amenorrheic women (90%), most hirsute women (80%), and nearly one third of amenorrheic women ***(Slowey, 2001).***The prevalence of PCOS is increased significantly with the irregularity of the menstrual cycle pattern, finding PCOS in 9% of the girls with regular menstrual cycles, 28% of the girls with irregular menstrual cycles, and 45% of oligo-amenorrheic girls ***(Van Hoff et al., 2000).*** The prevalence of PCOS among ovulatory women with infertility is higher than that in the normal population, suggesting that PCOS may, perhaps by virtue of an effect of Hyperandrogenaemia, contribute to the causes of sub-fertility in women with regular menses ***(Kousta et al., 1999)***.

Aim of the Work

Is to evaluate the role of preoperative clinical, biochemical and pelvic ultrasound criteria as predictors of therapeutic success of LOD in patients with Clomiphene Citrate resistant polycystic ovarian disease.

Therapeutic options of polycystic ovarian syndrome

Polycystic ovarian syndrome sometimes called hyperandrogenic chronic anovulation ***(Balen, 1999).*** the PCOS consensus workshop took place in Amsterdam, the Netherlands, in October 2010 , attempted to summarize current knowledge and to identify gaps in knowledge regarding various women's health aspects of PCOS agreed that PCOS was a primarily condition of ovarian dysfunction whose cardinal features were hyperandrogenisim (either clinical or biochemical) and polycystic morphology on ultrasound. Criteria for the diagnosis of PCOS in adolescents differ from those used for older women of reproductive age. Groups at risk (e.g., obese, hirsute, irregular menses) should be identified, but physicians should be cautious of over diagnosing PCOS **(Carmina et al., 2010).** According to ASRM/ESHRE (American Society for Reproductive Medicine & European Society of Human Reproduction and Embryology) consensus meeting in Rotterdam, 2003, PCOS is characterized by two of the following three criteria were required in order to diagnose the condition after exclusion of the other causes of androgen excess. These three criteria were: (I) oligo-

and/anovulation, (ii) clinical and/or biochemical signs of hyperandrogenism; and (iii) polycystic ovary morphology on ultrasound scan, defined as the presence of 12 or more follicles in each ovary (with one ovary being sufficient for diagnosis) measuring 2-9 mm in diameter, and/or increased ovarian volume (>10 ml) ***(Sharma et al., 2005)***. In essence, ***the Rotterdam 2003*** expanded the ***NIH 1990*** definition creating two new phenotypes: a) ovulatory women with polycystic ovaries and hyperandrogenisim, and b) Oligo-anovulatory women and polycystic ovaries, but without hyperandrogenism.

Androgen Excess Society (2006) defined PCOS to include all of the followings:

(i) Hirsutism and/or Hyperandrogenaemia.

(ii) Oligo- or anovulation and/or polycystic ovaries.

(iii) Exclusion of androgen excess or related disorders.

Treatment options need to be tailored to the clinical presentation. Education on short-term and long-term sequalae of PCOS from a reliable independent source is important in allaying anxiety and minimising the impact of illness in chronic disease. As a prelude to treatment psychological features need to be acknowledged, discussed and counselling considered ***(Huber et al., 1999)*** to enable lifestyle change which is unlikely to be

successful without first addressing education and psychosocial issues (Figure 1).

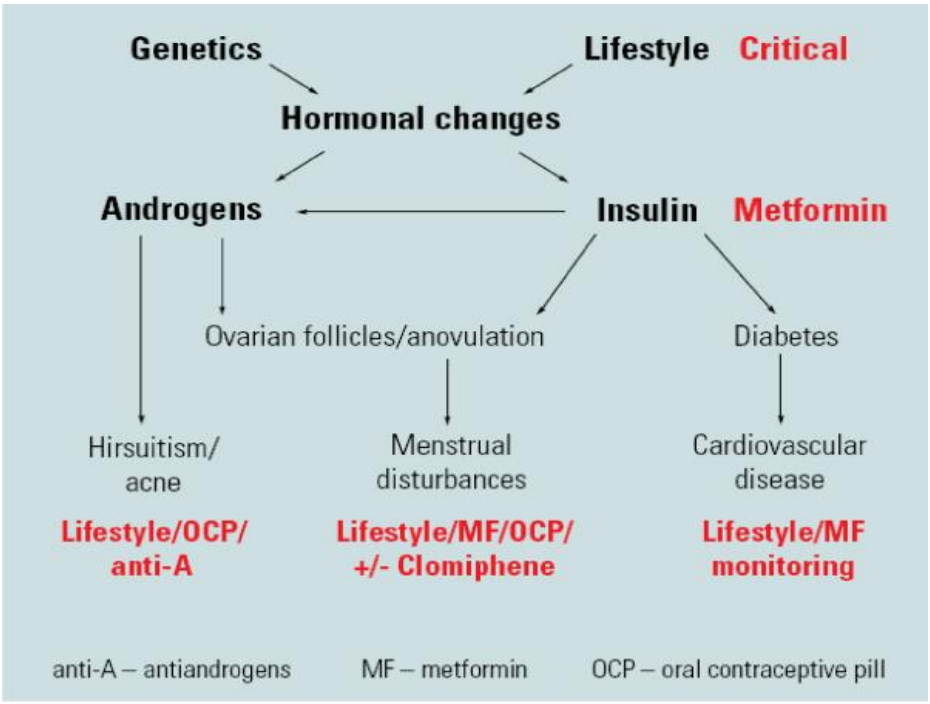

Figure (1): Summary of a targeted approach to therapy in polycystic ovary syndrome (PCOS). ***(Teede et al., 2008).***

Lifestyle change is first line treatment in an evidence-based approach in the management of the majority of PCOS women who are overweight ***(Moran et al., 2009).*** Furthermore, prevention of excess weight gain should be emphasized in all women with PCOS of both normal and increased body weight. As little as 5% to 10% weight loss has significant clinical benefits improving psychological outcomes ***(Hamilton et al., 1993)***,

reproductive features (menstrual cyclicity, ovulation and fertility and metabolic features (insulin resistance and risk factors for CVD and DM2). Evidence shows that lifestyle change with small achievable goals results in clinical benefits even when women remain in the overweight or obese range, ***(Wahrenberg et al., 1999)***. Standard dietary management of obesity and related co-morbidities ***(Poehlman et al., 2000)*** is a nutritionally adequate, low fat (approximately 30% of energy, saturated fat approximately 10%), moderate protein (approximately 15%) and high carbohydrate intake (approximately 55%), with increased fiber-rich wholegrain breads, cereals, fruits and vegetables and moderate regular exercise. A moderate energy reduction diet (500 to 1,000 kcal/day reduction) reduces body weight by 7% to 10% over a period of 6 to 12 months. Simple and practical tips that can be covered in minutes in medical consultation include targeting fruit juice, soft drinks, portion sizes and high-fat foods. Incorporating simple moderate physical activity including structured exercise (at least 30 min/day) and incidental exercise increases weight loss and improves clinical outcomes in PCOS, compared to diet alone ***(Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults ,Australia :2003).*** Exercise alone also improves clinical outcomes. As in the