

بسم الله الرحمن الرحيم



-C-02-50-2-





شبكة المعلومات الجامعية التوثيق الالكتروني والميكرونيلم





جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة يعيدا عن الغيار













بالرسالة صفحات لم ترد بالأصل



The Effectiveness of Uterine and Ovarian Doppler Velocimetry on Predicting Pregnancy in Clomiphene Citrate Cycles

Thesis

Submitted for Partial Fulfillment of Master Degree in Obstetrics and Gynecology

By

Amira Saber Abdel-Rahman Mohammad

M.B.B.Ch., Faculty of Medicine – Ain Shams University (2013) Obstetric and Gynecology resident in Dar ElSalam General Hospital

Under Supervision of

Prof. Sherif Abd Elkhalek Akl

Professor in department of Obstetrics and Gynecology, Faculty of Medicine - Ain Shams University, Cairo-Egypt.

Dr. Mohammed Saeed El-Din El Safty

Assistant professor in Department of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University, Cairo-Egypt.

Dr. Ahmed Mohammed El-Kotb

Assistant professor in Department of Obstetrics and Gynecology, Faculty of Medicine - Ain Shams University, Cairo-Egypt.

Faculty of Medicine
Ain Shams University 2020



Acknowledgement

First of all, all gratitude is due to Allah almighty for blessing this work, until it has reached its end, as a part of his generous help, throughout my life.

Really I can hardly find the words to express my gratitude to **Prof. Sherif Abd Elkhalek Akl**, Professor in department of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University, Cairo-Egypt, for his supervision, continuous help, encouragement throughout this work and tremendous effort he has done in the meticulous revision of the whole work. It is a great honor to work under his quidance and supervision.

I would like also to express my sincere appreciation and gratitude to **Dr. Mohammed Saeed El-Din El Safty**, Assistant professor in Department of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University, Cairo-Egypt, for his continuous directions and support throughout the whole work.

I cannot forget the great help of **Dr. Ahmed Mohammed El-Koth**, Assistant professor in Department of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University, Cairo-Egypt for his invaluable efforts, tireless guidance and for his patience and support to get this work into light.

I cannot forget the great help of **Dr. Alaa Moustafa** Specialist of Fetal Medicine, Ain shams University for his invaluable efforts, tireless guidance and for her patience and support to get this work into light.

Words fail to express my love, respect and appreciation to my dear sister Dr. Amal Saber for her unlimited help and support.

I am extremely sincere to my family who stood beside me throughout this work giving me their support.

Amira Saber Abdel-Rahman Mohammad

Table of Contents

	Page
List of abbreviations	i
List of tables	iii
List of figures	V
Introduction	1
Aim of work	4
Review of literature	5
• Chapter 1: Polycystic Ovary Syndrome (PCOS)	5
Chapter 2: Ovulation induction	23
Chapter 3: Doppler sonography	34
Patients and methods	49
Results	58
Discussion	73
Summary	81
Conclusion	84
References	85
Arabic summary	

List of Abbreviations

Abb. Full term

ART : Assisted reproductive technology

BMI : Body mass index

CC : Clomiphene citrate

DHEAS : Dehydroepiandrosterone sulphate

DM : Diabetes Mellitus

ET : Endometrial thickness

ET : Embryo transfer

FFF : Follicular fluid factor

FSH : Follicular stimulating hormone GnRH : Gonadotropin releasing hormone

hCG : Human chorionic gonadotropin

HDL : High density lipoprotein

HMG : human menopausal gonadotrophin

HPO : Hypo-thalamo-pitutary ovarian

HSG : Hystro salpingography

ICSI : Intracytoplasmic sperm injection

IGF : insulin growth factor

IGT : Impaired glucose tolerance

IUI : Intra uterine insemination

IVF : Invitro fertilizationLBW : Low birth weight

LDL : Low density lipoprotein

LH : Lutinizing hormone

NPV : Negative predictive value

OHSS : Ovarian hyper stimulation syndrome

PCOS : Poly cystic ovary syndrome

Abb.	Full term
PI	: Pulsatility index
PID	: Pelvic inflammatory disease
PPV	: Positive predictive value
PRF	: Pulse repetition frequency
PSV	: Peak systolic velocity
RI	: Resistance index
SERM	: Selected estrogen receptor modulator
SHBG	: Sex hormone binding globulin
TGF	: transforming growth factor

List of Tables

Table	Title	Page
(1)	Diagnostic criteria for PCOS.	19
(2)	Therapeutic Options in Polycystic Ovary	21
	Syndrome.	
(3)	Treatment approaches to infertility secondary	22
	to anovulation from PCOS.	
(4)	Comparative advantages and disadvantages	36
	between different types of Doppler	
(5)	Demographic characteristics of the studied	59
	cases.	
(6)	Dominant follicle size (mm) of the studied	59
	cases.	
(7)	Uterine artery measures before and after	60
	treatment.	
(8)	Ovarian artery measures before and after	62
	treatment.	
(9)	ET (mm) of the studied cases	64
(10)	Clinical pregnancy among studied cases.	65
(11)	Comparison according to clinical pregnancy	66
	regarding demographic characteristics.	
(12)	Comparison according to clinical pregnancy	68
	regarding uterine artery measures.	
(13)	Comparison according to clinical pregnancy	70
	regarding ovarian artery measures.	
(14)	Comparison according to clinical pregnancy	71
	regarding ET (mm)	

Table	Title	Page
(15)	Comparison according to clinical pregnancy	72
	regarding dominant follicle size (mm).	

List of Figures

Fig.	Title	Page
(1)	Transvaginal ultrasound demonstrates an	7
	ovary with polycystic ovarian morphology.	
(2)	The pathophysiology of PCOS.	9
(3)	Insulin resistance and its relation with PCOS	11
(4)	The development of PCOS from prenatal	12
	time to puberty	
(5)	Follicular changes in PCOS.	14
(6)	The abnormal response of PCOS patients to	16
	LH	
(7)	Hyper insulinaemia in PCOS cases.	17
(8)	Insulin resistance is the link between PCOS	18
	and metabolic syndrome.	
(9)	Clomiphene citrate structure.	24
(10)	Tamoxifen citrate structure.	27
(11)	Chemical structure of Metformin.	32
(12)	Insulin resistance as a significant contributor	33
	to polycystic ovary syndrome Rotterdam	
	diagnostic criteria.	
(13)	Illustration of Continuous wave Doppler	38
(14)	Illustration of Pulsed wave Doppler	38
(15)	Parasagittal scan at the level of the uterine	39
	cervix detecting ascending main branch of the	
	uterine artery by color Doppler image.	
(16)	Color Doppler image of ovarian blood flow	39
	in a spontaneous cycle.	
(17)	Effect of the Doppler angle in the sonogram	40
(18)	Position of the scanner for vaginal pulsed	45
	Doppler sampling of the left ovarian artery.	

Fig.	Title	Page
(19)	Position of the scanner for vaginal pulsed	46
	Doppler sampling of the left ovarian artery.	
(20)	Illustration of the current study intervention	51
(21)	Transvaginal ultrasonography and color Doppler of left uterine artery at day 3 of the cycle.	54
(22)	Transvaginal ultrasonography and color Doppler of left uterine artery at day 14 of the cycle	54
(23)	Transvaginal ultrasonography and color Doppler of left ovarian artery at day 3 of the cycle.	55
(24)	Transvaginal ultrasonography and color Doppler of left ovarian artery at day 14 of the cycle.	55
(25)	Flow chart of the studied cases.	58
(26)	Uterine artery PI measures before and after treatment.	61
(27)	Uterine artery RI measures before and after treatment.	61
(28)	Ovarian artery PI measures before and after treatment.	63
(29)	Ovarian artery RI measures before and after treatment.	63
(30)	ET measures before and after treatment.	64
(31)	Clinical pregnancy among the studied cases.	65
(32)	Comparison according to clinical pregnancy regarding age.	67
(33)	Comparison according to clinical pregnancy regarding BMI.	67
(34)	Comparison according to clinical pregnancy	69

Fig.	Title	Page
	regarding uterine RI after treatment.	
(35)	Comparison according to clinical pregnancy	71
	regarding ET	
(36)	Comparison according to clinical pregnancy	72
	regarding dominant follicle size.	