Therapeutic and Diagnostic Values of Office Hysteroscopy and Laparoscopy in ICSI Patients

Thesis

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Abstract

We studied 200 patients destined to have ICSI cycles either for the first time or repeatedly in the kasralainy IVF unit. They have done ICSI cycles due to male factor,ovarian,tubal,uterine factors or unexplained infertility.

All patients had routine office hysteroscopy prior to their cycles assessing the vagina cervix,isthmus and uterine cavityand If laparoscopy was indicated as in cases with endometriosis,endometriomas,excision of an ovarian cyst or salpingectomy in cases with hydrosalpinx ,it was done to the patient. The additive diagnostic and therapeutic values of hysteroscopy and laparoscopy were estimated and compared to the diagnostic value of the routinely used modalities as transvaginal U/S and HSG.The comparison revealed marked superiority of the office hysteroscopy in its diagnostic power over the transvaginal U/S and HSG especially in assessing uterine intracavitary lesions, This is added to its therapeutic contribution which can be done in the same setting

Key word:

***HSG**

***ICSI**

*** Hysteroscopy**

*** Laparoscopy**

*** ANOVA**

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LIST OF ABBREVIATIONS

%	Percent
<	Less
>	More
=	Equal
IV	Four
2D-US	Two Dimensional Ultrasound
3D-US	Three Dimensional Ultrasound
AJ	Adherin Junction
ANOVA	Analysis Of Variance
AP1	Activator Protein One
AUB	Abnormal Uterine Bleeding
CBC	Complete Blood Count
cm	Centimeter
CO2	Carbon dioxide
COX	Cyclooxygenase
CRF	Case Record Form
CT	Computed Tomography
D&C	Dilatation and Curettage
DM	Diabetes Mellitus
DNA	Deoxyribonucleic Acid
DUB	Dysfunctional Uterine Bleeding
e.g	Example
EIN	Endometrial Intraepithelial Neoplasia
ESC	Endometrial Serous Carcinoma
ER	Estrogen Receptors
Fig.	Figure
FI	Flow Index
FIGO	International Federation of Obstetrics and Gynecology
F.M.P	Final Menstrual Period
FNA	Fine Needle Aspiration
FSH	Follicle Stimulating Hormone
GDFs	Growth Differentiation Factors
Hg	Mercury
HP	High Penetration
HPF	High Power Field
HPV	Human Papilloma Virus
IGF1R	Insulin-like Growth Factor One Receptor
LH	Luteinizing Hormone
MHz	Mega Hertz
MI	Mitotic Index
mm	Millimeter
mRNA	Microsomal Ribonucleic Acid
MMPs	Matrix Metalloproteinases
MP	Mid-Penetration
MRI	Magnetic Resonance Imaging

NaCl	Sodium chloride
NPV	Negative Predictive Value
NY	New York
Ob/Gyn.	Obstetrics and Gynecology
OH	Office Hysteroscopy
P	Probability
PGE	Prostaglandin E
PI	Pulsatility Index
PPV	Positive Predictive Value
PR	Progesterone Receptors
PTEN	Tumor suppressor Phosphatase and Tensin homologue in chromosome ten
R	Correlation Coefficient
RI	Resistivity Index
ROC	Receiver Operating Curve
ROI	Region of Interest
SD	Standard Deviation
SIS	Saline Infusion Sonohysterography
SPSS	Statistical Package for the Social Science
STEP-W	Size, Topography,Extension of the base, Penetration, lateral Wall
STRAW	Stages of the Reproductive Aging Workshop
TGF	Transforming Growth Factor
TIMP	Tissue Inhibitor of Matrix Metalloproteinases
TJ	Tight Junction
TNF	Tumor Necrosis Factor
TVS	Transvaginal Ultrasound
TV-U/S	Transvaginal Ultrasound
TV-US	Transvaginal Ultrasound
UPSC	Uterine Papillary Serous Carcinoma
US	Ultrasound
USA	United States of America
VEGF	Vascular Endothelial Growth Factor
VFI	Vascularization Flow Index
VI	Vascularization Index
VOCAL	Virtual Organ Computer Aided Analysis
VPS	Volume Percentage Stroma
WHO	World Health Organization
χ^2	Chi-Square

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Mostafa Mahmoud Ragai

INTRODUCTION

Introduction

Despite advances in the field of assisted reproductive techniques (ART), only one-third of cycles started end in a pregnancy and one-fourth result in a live birth **(Society for Assisted Reproductive Technology , 2007)**.

ART has developed over a decade to become useful for couples with infertility which cannot be cured by simple treatments. The birth rates are comparable to natural conception and the incidence of congenital malformations is not increased. The costs and complexities of treatment have been reduced, which in turn has reduced the stress and social inconvenience of therapy. Problems related to the birth risk of multiple pregnancy and the use of the stimulated cycle are being reduced as new techniques for severe male infertility and the detection of genetic abnormalities in the embryo have been introduced**(Society for Assisted Reproductive Technology , 2007)**.

Intrauterine pathologies are found to be present in 25% of infertile patients **(Levi Setti PE.et al., 2004)** Structural abnormalities of the uterine endometrial cavity may affect the reproductive outcome adversely, by interfering with the implantation or causing spontaneous abortion. Therefore, exclusion of any intrauterine pathology becomes an important step before subjecting the patient to ART. Intrauterine abnormalities may be visualized using variety of techniques, including hysterosalpingography (HSG), transvaginal sonography (TVS)/sonohysterography (SHG), and hysteroscopy **(Devroey P. et al., 2009).**

The HSG, although very sensitive (98%), has low specificity (34.9%), a positive predictive value (PPV) of 69.9%, and a negative predictive value (NPV) of 92% **(Preutthipan S. et al., 2003).** The TVS is more specific (96.3%) and sensitive (100%) than HSG, with a 91.3% PPV and a 100% NPV **(Shalev J et al**., **2000)**. Although hysteroscopy is considered the ‘‘gold standard,’’ controversies still exist between TVS and hysteroscopy in the diagnosis of intrauterine abnormalities.

With the invention of the miniature hysteroscope, it is possible to perform hysteroscopy in an office setting for diagnostic indications and certain therapeutic interventions (**Bettocchi S. et al., 2004)**.

Although operative hysteroscopy has progressively been accepted for the treatment of intrauterine pathologies, diagnostic hysteroscopy is still not widely and routinely used. Whereas almost all urologists utilize office cystoscopy to evaluate bladder pathology, it is estimated that less than 20% of gynecologists utilize office hysteroscopy to evaluate uterine pathology (**Isaacson, 2002).**

Office diagnostic hysteroscopy is also indicated for the evaluation of the cervical and uterine factors in patients with infertility and especially in those who are scheduled to enter an in vitro fertilization (IVF) program. (**Bettocchi S. et al., 2004)**.

Diagnostic laparoscopy is indicated mainly for investigation of pelvic pain and subfertility **(Keye WR. Et al., 1996)**, as well as it is the standard method for the diagnosis of endometriosis and adhesions, as no

other imaging technique provides the same degree of sensitivity and specificity. **(Munro Malcolm G. et al., 2007).**

Laparoscopic operations for the treatment of mechanical infertility are probably equally effective to similar procedures performed by laparotomy. In patients with extensive adhesions, however, the effectiveness of all procedures is limited. Assisted reproductive technologies such as in vitro fertilization and embryo transfer are necessary in these situations. **(Gomel V et al., 1995)**

In the present study we have evaluated intrauterine pathologies using Transvaginal Ultrasound (TVS), Hystero-Salpingography (HSG) and outpatient (office) hysteroscopy (OH) in patients scheduled for ART—IVF or intracytoplasmic sperm injection (ICSI)–ET. Our objectives were to evaluate the importance of subjecting the patient to OH before ART and the value of Diagnostic Office Hysteroscopy on ICSI outcome comparing to TVS, HSG. Also we tried to assess the diagnostic and therapeutic values of laparoscopy in such patients.

REVIEW OF LITTERATURE

CHAPTER I