HYSTEROSCOPY VERSUS SALINE SONOHYSTEROGRAPHY IN PATIENTS WITH RECURRENT IMPLANTATION FAILURE

Thesis

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List of Abbreviations

Abbrev.	Full term
ACL	Anti cardiolipin antibody
AH	Assisted hatching
APL	Anti phospholipid
ART	Assisted reproductive technology
AUB	Abnormal uterine bleeding
BDPN	Break down pronuclei stage
BMI	Body mass index
CD	Cycle day
CGH	Comparative genetic hybridization
COH	Controlled ovarian hyperstimulation
CTET	Clinical touch embryo transfer
EC	Early cleavage
FET	Frozen embryo transfer
FISH	Fluorescent in situ Hybridization
FSH	Follicle stimulating hormone
GAST	Gonado trophin agonist stimulation test
GnRH	Gonadotropin releasing hormone
GnRHa	Gonadotropin releasing hormone agonist
GTN	Glyceryl nitrate
HCG	Human chorionic gonadotropin
HEED	Hysteroscopic Endometrial Embryo Delivery
HLA	Human Leukocyte antigen
HMG	Human menopausal gonadotrophin
HSG	Hysterosalpingogram
h-TEST	Hysteroscopic tubal embryos transfer
ICSI	Intracytoplasmic sperm injection
IVF	In vitro fertilization
IVF-ET	In-vitro fertilization- Embryo transfer
IVIG	Intravenous immunoglobulin
LA	Lupus anticoagulant

List of Abbreviations (Cont'd)

Abbrev.	Full term
LH	Luteinizing hormone
MESA	Microsurgical epidemiology sperm aspiration
MRI	Magnetic resonan imaging
PCOs	Polycystic ovarian syndrome
PGD	Preimplantation genetic diagnosis
PGS	Preimplantation genetic screening
PI	Pulsatility Index
POST	Peritoneal oocytes and sperm transfer
PR	Pentration Rate
PZD	Partial zona dissection
RCTs	Randomized controlled trials
RIF	Recurrent implantation failure
RM	Recurrent miscarriage
sHCG	Human chorionic gonadotrophin in serum
SHG	Sonohysterography
SHSG	Saline infusion sonography
SUZI	Subzonal insemination
TESE	Testicular sperm extraction
TET	Tubal embryo transfer
TVs	Tranvaginal sonography
TVUS	Transvaginal ultrasound
UGET	Ultrasound guided embryo transfer
WHO	World health organization

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Introduction

INTRODUCTION

The techniques used in assisted reproductive technologies (ART) have advanced considerably since the first in vitro fertilization (IVF) birth in 1978. Tools are now available that enable the selection of high-quality embryos and assessment of endometrial status. Furthermore, ART protocols continue to evolve with the aim of achieving higher pregnancy rates, fewer multiple births and healthy babies from genetically affected progenitors. However, despite these advances, pregnancy rates are still relatively low and have not increased significantly in the last decade This suggests that implantation rates in stimulated cycles remain suboptimal ***(Andersen et al., 2005).***

Only a third of in vitro fertilization (IVF) cycles that are started end in pregnancy ***(Society of Assisted Reproductive Technology and The American Society of Reproductive Medicine, 2007).***

Successful embryo implantation is a crucial event in natural and assisted human reproduction. Blastocyst implantation is a dynamic process, involving embryo apposition, attachment to the maternal endometrial epithelium, and invasion into the endometrial stroma ***(Hanna and Ariel, 2006)***. With in vitro fertilization (IVF), implantation failure can occur due to several factors ***(Levi et al., 2004),*** including poor

embryo quality which is identified as a major cause of implantation failure ***(Urman et al., 2005)***.

Failure of IVF treatment could be broadly attributed to embryonic, uterine, transfer factors, but remain unexplained in most cases ***(Margalioth et al., 2006).***

Various benign endometrial pathologies such as endometrial polyp, intra – uterine synechiae, uterine septum, myoma, endometritis, and endometrial hyperplasia may have negative effect on pregnancy rate in IVF, it is therefore essential to assess anatomical integrity of the uterus before IVF ***(Lass et al., 1999).***

A number of interventions have been proposed to improve IVF outcome, most of which are not strictly evidence based and their efficacy in improving pregnancy rates remains controversial ***(De Sutter, 2006).*** As a result, there is considerable variation in the approach to investigations and management of IVF failure ***(Tan et al., 2005).***

Historically and till today, most of clinicians prefer hysterosalpingography (HSG) as a first line approach to evaluate the intrauterine pathology in infertile patients, but it has been proved to have certain drawbacks. HSG has been reported to have a low specificity, false positive rate of 15.6% and false negative rate of 35.4%. Therefore, it appears that in more than one –third of the cases where the HSG is interpreted

as normal, it may cause false reassurance ***(Cunha-Filho et al., 2001).***

Since it allow direct visualization of the endometrium, hysteroscopy is the gold standered for the evaluation of the uterine causes of infertility as it can detect small lesions that might not otherwise be readily diagnosed by other methods ***(Urman et al., 2005).***

There is no doubt that hysteroscopy should be performed when there is suspicion of intrauterine pathology at transvaginal ultrasound or HSG. However, even when no abnormality is found with those tools, at hysteroscopy several subtle intrauterine pathologies have been noted in 18-50% of patients undergoing IVF ***(Doldi et al., 2005).***

Moreover, routine office hysteroscopy has been suggested by a number of investigators as a minimally invasive and well tolerated test to ensure normality of the uterine cavity before embryo transfer ***(Nawroth et al., 2003).***

In recent years, the reduction of hysteroscopy caliber, the rare need for anesthetics or analgesia and the introduction of vaginoscope technique have significantly improved patients compliance to hysteroscopy. Furthermore, according to several authors, vaginoscope approach for hysteroscopy avoids the need for premedication and renders the procedure faster with very rare complications ***(Pellicano et al., 2003).***

The use of saline sonohysterography (SHG) is an appealing alternative to Hysteroscopy and HSG for uterine screening before IVF ***(Kim et al., 1998).***

SHG as an outpatient diagnostic method is easy, sensitive, and well tolerated. It is not time consuming and does not require anesthesia. Under aseptic condition, it does not lead to infectious morbidity. Further in patients with repeated failed IVF-ET despite transfer of good-quality embryos, it should be applied routinely as a first-line diagnostic tool ***(Shokeir and Abdel-Shaheed, 2009)***.

Aim of the Study

AIM OF THE STUDY

The aim of this study is to compare and assess the value of hysteroscopy and saline sonohysterography in patients with recurrent implantation failure.