

Sudan University of Science and Technology
College of

**Diagnostic Ultrasonic Assessment of In Vitro
Fertilization in Women in the period July 2010 to
March 2011**

تقييم الإخصاب الخارجي للنساء بواسطة الموجات
الصوتية التشخيصية
في الفترة من يوليو 2010 إلى مارس 2011

**Thesis Submitted for Partial Fulfillment of M. Sc. Degree
Requirement in Medical Diagnostic Ultrasound**

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I present my great thanks and tribute to everyone who rendered a service to me and had a favor for success in my work

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I
Dedicate the fruits of this
thesis to
My Parents
My Husband
My Teachers
My Brothers and Sisters
&
My Colleagues

Abstract

The aim of this study was to evaluate the IVF among Sudanese women and it's outcome, depending on the utilization of ultrasound scanning. The study was carried out on 125 patients of infertility at Khartoum Fertility Center in Khartoum state in the

period from July 2010 to March 2011. The applied US system version was Fukuda Made in Japan (UF-850XTD) and the utilized Probes energies were 3.5 for abdominal scanning and 7 MHz for trans-vaginal scanning with enhancement of Gel as acoustic .coupling agent

The collected variables were the infertility factors, age groups, ovulation, embryo transfer, pregnancy, fetal weight with correlation to BPD, FL, AC and IVF outcome. The analysis was carried out using EXCEL program and SPSS which in turn showed that: the common infertility factors in Sudan were uterine factor which represent 29.6%, Tubal disease 15.2%, Multiple factors 20%, Endometriosis 4.8%, unexplained factors representing 9.6% and male factors with 20.8%. The analysis of age revealed that the most successful age groups for ovulation were 28-30, 31-33 and 34-36 years taking a percent of 97.4%, 87.5% and 80% respectively, while the age groups of 37-39, 40-42 and 43-45 years showing less percent of ovulation as 68.2%, 52.6% and 35.7% respectively. The high percent of embryo transfer (ET) were found among younger women taking the percentage of 85.4% and 74.3% for the age groups of 28-30 and 31-33 years old respectively then the percentage of ET decreases following the aging from 60.9% to 48%, 26.3% down to 14.3% for the age groups of 34-36, 37-39, .40-42 and 43-45 years old respectively

The successful pregnancy of IFV occurred for the age groups of 28-30 and 31-33 with a percent of 56.8% and 50.8% respectively, then the pregnancy success decreases following the aging from 40.8 % to 21.5%, 10.5% to 0.0% for the ages of .34-36, 37-39, 40-42 down to 43-45 years old respectively

The study also found that the fetal weight of IVF technique significantly appears below the normal range of weight and the t-test showed that the significance (t. test) were at P= 0.01 for GA of 34 weeks, at P= 0.02 for GA of 35 weeks, at P= 0.04 for GA of 36 weeks, at P= 0.05 for GA of 37 weeks and the reduction of weight in percent was 5.5%, 2.0%, 12.7% and 0.5% respectively

Also the study revealed that there is linear increment relationship between the BPD, FL and AC versus the gestational age, and a linear increment relationship between the .BPD, FL and AC versus the fetal weight

The study also showed that the general IVF outcome bear out with a single born .43.9% ,twins born represented 24.4% ,miscarriage 22.0% and triplet born was 9.8%

الخلاصة

هدف هذه الدراسة هو تقييم الإخصاب الخارجي في النساء السودانيات و محصلته النهائية بالاعتماد على فحوصات الموجات الصوتية . أجريت الدراسة على 125 مريضة بعدم الإنجاب بمركز الخرطوم للإخصاب في الفترة من 2010-2011، و استخدم جهاز الموجات الصوتية موديل (Fukuda-Japan UF-850XTD) و مزبار بترددات 3.5 ميغاهيرز لفحص البطن و 7 ميغاهيرز للفحص من خلال المهبل مع استعمال الجلي لتوصيلية الموجة الصوتية.

المتغيرات التي جمعت هي: عوامل عدم الإنجاب ، العمر ، التبويض ، انت قال الأجنة ، الحمل ، وزن الجنين وارتباطه بعرض رأس الجنين - طول عظمة الفخذ - محيط البطن و المحصلة النهائية للتخصيب الخارجي .

تم تحليل البيانات بواسطة برنامج EXCEL and SPSS و الذي أوضح الآتي :

غالبية عوامل عدم الإنجاب بالسودان هي عوامل رحمية 29.6% ، أمراض الأنايب 15.2% ، عوامل متعددة 20% ، عوامل داخلية للرحم 4.8% ، عوامل غير محددة 9.6% ، و عوامل خاصة بالذكور 20.8% .

كما أوضحت الدراسة إن أكثر نسبة نجاح للتبويض هي 97.4% ، 87.5% ، 80% لكل من الأعمار 28-30 ، 31-33 ، 34-36 على التوالي ، و تقل هذه النسب مع تقدم العمر و ذلك بنسبة 68.2% ، 52.6% ، 35.7% لكل من الفئات العمرية 37-39 ، 40-42 ، و 43-45 سنة على التوالي .

كما إن أعلى نسبة لانت قال الأجنة كان للنساء الشباب بنسب قدرها 85.4% ، 74.3% ، لكل من الأعمار 28-30 و 31-33 سنة على التوالي و تقل هذه النسب بتقدم العمر من 60.9% إلى 48% - 26.3% - و الأدنى 14.3% لكل من الأعمار 34-36 ، 37-39 ، 40-42 ، و 43-45 سنة على التوالي .

كانت نسبة نجاح الحمل للإخصاب الخارجي هي 56.8% و 50.8% لكل من الأعمار 28-30 و 31-33 سنة على التوالي و من ثم قلت نسبة النجاح بتقدم العمر من 40.8% إلى 21.5% و إلى 10.5% و إلى 0.0% لكل من الأعمار 34-36 ، 37-39 ، 40-42 ، و 43-45 سنة على التوالي .

كشفت الدراسة إن الأجنة من الإخصاب الخارجي ذوي أوزان أقل من الطبيعي بدلالة منوية لفحص (ت) بمقدار 0.01 ، 0.02 ، 0.04 ، و 0.05 لكل من فترات الحمل 34 ، 35 ، 36 ، 37 أسبوع . حيث كان النقص في الأوزان بمقدار 5.5% ، 2.0% ، 12.7% و 0.5% على التوالي .

كما أوضحت الدراسة إن هناك علاقة خطية مطردة بين فترة الحمل و كل من عرض رأس الجنين ، طول الفخذ و محيط البدن . و أيضا هناك علاقة خطية مطردة بين وزن الجنين و كل من عرض رأس الجنين ، طول الفخذ و محيط البدن . و أيضا هناك علاقة خطية مطردة بين وزن الجنين و كل من عرض رأس الجنين ، طول الفخذ و محيط البدن . بينما المحصلة النهائية للإخصاب الخارجي هي طفل واحد 43.9% ، توأم 24.4% ، اجهاض 22% ، وثلاث توأم بنسبة 9.8% .

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List of Abbreviation

Referring	Abbreviation
In Vitro Fertilization	IVF
Intra Cytoplasmic Sperm Injection	ICSI
Ovarian Hyper Stimulation Syndrome	OHSS
Human Chronic Gonadotropins	HCG
Centimeters	Cm
Polycystic Ovary Syndrome	PCOS
Bi-Parietal Distances	BPD
Femur Length	FL
Abdominal Circumference	AC
Ultrasound	U\S
Gestational Age	GA
Embryo transfers	ET

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