USE OF IUI IN TREATMENT OF INFERTILITY

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SUMMARY

This is a prospective clinical trial conducted in 115 patients with history of infertility varying from 2 to 10 years. IUI was done in 289 cycles and 37 patients conceived giving a pregnancy rate of 32.2 percent and a cycle fecundity of 13 percent.

INTRODUCTION

Artificial insemination using husband's semen are one of the newer modalities of treatment for infertility. Most couples seeking infertility care, do not have problems rendering them completely unable to conceive. Rather, they have conditions associated with a relative decrease in the monthly likelihood of conception, or subfertility, in which pregnancy can occur only after taking treatment.

The rationale for using IUI as a treatment modality for such cases is based on countering the filtration effect of cervical mucus. Hence, using IUI may increase the number of sperms reaching the distal fallopian tube, assuming that the sperm separation procedure recovers a high proportion of motile sperm from the ejaculate.

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Unfortunately, bypassing the cervical mucus, which acts as a reservoir for sperm at midcycle, requires timing coincident with ovulation for insemination. Hence methods such as BBT, Ultrasound monitoring etc are used to ascertain the time of follicular rupture. In, this study we have used IUI as a modality of treatment for such patients.

MATERIAL AND METHODS

This study was conducted over a period of 12 months between 1991 and 1992. One hundred and fifteen patients were incorporated in this study. The age of the patients varied between 22 and 35 years, with a duration of infertility varying between 2 and 10 years. The indications for insemination were :

1.	Cervical factor	26
2.	Male factor	53
3.	Unexplained infertility	36

In all the cases husband's semen was used

for IUI and the total number of treatment cycles were limited to 6. IUI was done twice in each cycle 24 and 48 hours after follicular rupture.

Follicular monitoring was done by ultrasound on the Ausonics-1000 Micro Imager using a Transvaginal Probe (7.5 mHz). Inj. HCG 10,000 units was given intramuscularly, after a follicular size of > 18 mm, and an endometrial lining of > 10 mm in thickness, was attained. IUI was done 24 and 48 hrs later after confirmation of follicular rupture on ultrasound.

Semen samples were obtained by masturbation after 24 to 48 hours of sexual abstinence. The semen parameters were measured according to the World Health Organization Guidelines. Then the semen was washed in a conical test tube with the washing medium consisting of Ham's-F10 medium (GIBCO, NY), 20% Human Serum Albumin (ALBUMINAR, CA) and 5000 i.u. of Penicillin and Streptomycin solution (SIGMA, St. Louis) at 200 g for 7 minutes. The supernatant was discarded and the sperm pellet was layered with the same washing medium and kept in a CO_2 incubator for 45 minutes in 5% CO_2, at 37 C. After incubation, the supernatant (swim-up) was removed and used for IUI.

Intra-uterine insemination (0.4 ml) was performed by placing a speculum into the vagina to expose the cervix. The ectocervix was wiped with cotton swab to remove vaginal secretions and excess cervical mucus. The ectocervix was caught with a volsellum, the semen was then delivered using a 1 ml tuberculin syringe with 20 gauge needle and 10 cm length GIFT catheter (Cook's, NY) which was placed through the cervical os in the fundal area of the uterine cavity. The suspension of washed sperm was injected over 30 to 60 seconds, and the patient remained in a headlow position for 20 minutes. All pregnancies were confirmed by ultrasound evidence of gestational sac.

RESULTS

There were 115 patients in this study. A total of 289 treatment cycles were performed. Thirty-seven patients became pregnant (pregnancy rate [PR], 32.2%) in 289 cycles (monthly fecundity, 13%).

Fifteen percent of the pregnancies resulted in spontaneous abortions. On the 26 patients with cervical factor 42 percent became pregnant, of the 53 patients with male factor 17 percent became pregnant and of the 36 patients with unexplained infertility 47.2 percent became pregnant.

Table I

Pregnancy Rate by Diagnosis

Diagnosis	Pregnant Rate (%)	Preg. / Cycle
Cervical factor	11/26 (42.3)	11/85 (13)
Male factor	9/53 (17)	9/114 (8)
Unexplained	17/36 (47.2)	17/91 (18.7)

Table II

Cycle Fecundity by Attempt

Cycle No.	Pregnancies/ Cycle	Fecundity
1	19/115	0.16
2	11/96	0.12
3	4/85	0.05
4	2/81	0.03
5	0.79	0.0
6	1/79	0.02
Total	37/289	0.13

Table III

Literuture survey of IUI

Studies	Patients	Preg./Cycle
Byrd et al	35	15/106
Dmowski et al	27	4/90
Glass et al	19	0/67

DISCUSSION

Cycle fecundity estimates by IUI are low. However, considering that no hyperstimulation protocol was used for the present study the results are gratifying. The pregnancy rates were the lowest in male factor in infertility (17%) probably due to abnormal semen parameters. Factors that can directly or indirectly affect pregnancy outcome include the timing, number and technique of insemination. IUI proves to be superior in all these aspects to influence pregnancy outcome. The results obtained are comparable with other studies done.