

# INTRA-UTERINE INSEMINATION OF HUSBAND'S WASHED SPERM

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## SUMMARY

Intra-Uterine Insemination (IUI) of washed sperm was done in 38 patients. Most of the patients had long standing infertility of more than five years. There were twelve (31.5%) pregnancies in 213 cycles. Seven pregnancies were from cervical factor infertility, two from male factor infertility and three from unexplained infertility. Most of the pregnancies occurred within six cycles of insemination, but additional pregnancies were achieved from seventh through the twelfth cycles of IUI. There was substantial improvement in motility, percentage and grading after sperm washing.

## Introduction

IUI refers to direct transfer of sperm to the intrauterine cavity. IUI, a technique first described in the 1930s, has recently enjoyed renewed interest. The increased use of IUI over the last ten years is due to several factors. The development and refinement of in-vitro-fertilisation (IVF) technology has led to the use of washed sperm for IUI. Washing of sperm (or semen preparation) before IUI has improved the chances of conception and minimised the complications (infection, uterine cramps etc.) of the procedure. Washing of sperm increases the concentration of motile sperm in the specimen, especially in cases of oligospermia and

reduces content of seminal plasma. Seminal plasma contains factors that may inhibit normal fertilisation and prostaglandins that can cause uterine cramping.

## Materials and Methods

IUI with washed husband's serum was performed in 38 patients. Table I shows the groups to which these patients belonged:

TABLE - I

| Type of Infertility         | No. of patients | Percentage |
|-----------------------------|-----------------|------------|
| Cervical factor infertility | 15              | 39%        |
| Male factor infertility     | 11              | 29%        |
| Unexplained infertility     | 12              | 32%        |

Cervical factor was diagnosed by at least three poor post coital test (PCT) results or by absent cervical mucus. A poor

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PCT is one with adequate cervical mucus and either less than 5 sperm per H.P.F. or less than 30% progressively motile sperm. The PCT was performed serially beginning 2 to 3 days before anticipated B.B.T. thermal shift, 8 to 12 hours after coitus.

Table II shows the male infertility cases with total sperm count and motility percentage.

TABLE - II

| No. of cases | Total sperm count per C.C. | Motility % |
|--------------|----------------------------|------------|
| 3            | Less than 1 million        | 10 - 20 %  |
| 3            | 1 - 5 million              | 20 - 40 %  |
| 5            | 5 - 20 million             | 20 - 40 %  |

32% of our cases were from unexplained infertility group. There was no patient of immunological infertility.

#### **Sperm Preparation By Swim Up Technique :**

The semen specimens are collected by masturbation into a sterile plastic cup. After liquefaction, it is diluted with 3 volumes (1:3) of Ham's F-10 medium (Flow Lab., U.S.A.), mixed gently in a sterile, capped 15 ml centrifuge tube and centrifuged at 250 G for 10 minutes. The supernatants containing the seminal plasma are removed. 2 ml of fresh insemination medium is added to the pellet. The pellet is resuspended and recentrifuged and the supernatant is removed. After this final wash, 2 ml of insemination medium is gently layered over the undisturbed pellet and the tube is placed upright in an incubator at 37°C for 45 minutes. Incubation allows the debris and nonmotile cells to remain at the bottom and allows motile sperm to swim into the supernatant.

At the end of the incubation period the supernatant is removed in the sterile

falcon culture tube and observed for the sperm count and motility and then loaded into a 1 c.c. tuberculin syringe for IUI.

#### **Insemination**

With the patient in the lithotomy position, a speculum is placed in the vagina, and the cervix is cleaned with a cotton ball soaked in sterile normal saline solution. Then the inseminating catheter is gently introduced into the uterine cavity. The transfer instrument must be able to traverse the cervical canal and reach the fundal region of the uterus without causing trauma. We have used intravenous canula (I.V. Cath.) of 16 no. size with tuberculin syringe for the insemination. After insemination the patient rested for 5 minutes and resumed normal activity.

#### **Timing of Insemination**

Because the fertilizing life span of the ovum is estimated to be 12 hours or less, the presence of the sperm in the ampulla of the tubes at the time of ovulation is essential for fertilization to occur. To be successful, IUI needs to be closely timed with ovulation, or alternately, repeated IUI's may have to be performed in a given cycle.

For timing of insemination we took help of ultrasound scanning, cervical scoring and BBT. We started inseminating when cervical mucus became thin and copious and/or two days before expected BBT rise. Three inseminations were sufficient in most of the patients.

#### **Results**

Thirty eight patients were inseminated in 213 cycles. Mean age of the women was  $31.5 \pm 5.5$  years and of the men it was  $35.5 \pm 6.6$  years. The mean duration of infertility was  $5.5 \pm 2.6$  years. Primary infertility was present in thirty-two pa-

tients (84%) and secondary infertility was present in six patients (16%). Twelve pregnancies (31.5%) were achieved. Ten resulted in term deliveries, one had spontaneous abortion at nine weeks of pregnancy and one resulted in ectopic pregnancy. There were no pregnancies. Nine pregnancies were conceived by women with primary infertility and three by women with secondary infertility. Eight pregnancies were achieved within six cycles. Three pregnancies were achieved in ten cycles. One pregnancy occurred after thirteen cycles.

Out of twelve pregnancies seven (58%) were from cervical factors, two (17%) from male factors and three (25%) from unexplained infertility group. The success in male factor infertility was only in the patients having motility between 20% to 40%.

There were no major complications in the series except one abortion in early weeks of pregnancy. There were no incidence of clinical infection. We did not give prophylactic antibiotics to the patients. Mild uterine cramps were experienced by three patients. No treatment was given to these patients.

#### Comments

With the recent extensive use of sperm

washing of IUI, success has varied with the infertility diagnosis. The pregnancy rates for cervical factor has been reported to be from 14% - 86%, for male factor from 0% to 21%, for immunological factor from 11% to 50% and for other indication including unexplained infertility from 0% to 62%. Our success is consistent with other published studies showing the poorest chance of achieving pregnancy with male factor and the best pregnancy rates with cervical factors. In cases of unexplained infertility it is difficult to say whether these pregnancies resulted from spontaneous remission of an unknown factor or from the insemination (IUI) itself.

The spontaneous abortion rate in IUI treated pregnancies varies from 25% to 30%. The increased incidence of spontaneous abortion may be associated with bypassing natural sperm selection process in the cervix. In our series there was only one (8%) abortion.

#### Conclusions

IUI with washed sperm is a useful treatment specially for cervical factor infertility. If no pregnancy is obtained after six cycles of treatment with IUI, further treatment may be considered, as additional pregnancies can be achieved from the seventh to twelfth cycles of IUI.