

## Role of Intrauterine Insemination (IUI) in Treatment of Infertility

FAUZIA MONNOO KHAN

### ABSTRACT

**Objective:** To evaluate the place of intrauterine insemination (IUI) in treatment of infertility.

**Results:** Main outcome measure was a positive pregnancy test. A positive pregnancy rate of 11% per cycle and ongoing pregnancy rate of 10% was observed.

**Conclusion:** Prior to the use IVF or ICSI, intrauterine insemination with ovulation induction is a relatively cheap and simple alternative. 10-20% couples will conceive and not require further treatment.

**Keyword:** Intrauterine insemination (IUI) in vitro fertilizations (IVF) intracytoplasmic sperm injection (ICSI)

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### INTRODUCTION

Infertility is defined as inability to conceive after one year of unprotected intercourse. Overall fifteen to twenty percent of couples suffer from this problem and may require assisted reproductive technology<sup>1</sup>. Male factor infertility accounted for 45% of these cases. Unexplained infertility is responsible for another 20%.

Intrauterine insemination (IUI) is a procedure where semen is prepared and motile sperms are injected in the uterus at a specific time that corresponds with ovulation. This procedure is used to enhance pregnancy rates with or without ovulation stimulation. Fallopian tube insemination has not been shown to enhance success<sup>2</sup>.

High pregnancy rates are seen if post wash total motile sperm count is high<sup>3</sup>. Controlled Ovarian Hyperstimulation(COH) with IUI enhances pregnancy rates<sup>4</sup>, however success rate is poor in women over forty<sup>5</sup>.

### MATERIAL AND METHODS

This retrospective study was carried out at two centers i.e. Fatima Memorial Hospital Lahore and Lahore Healthcare, a private fertility centre. A total of 98 cycles of IUI treatment were performed. A patient selection criterion was male sub fertility, unexplained fertility, male impotence, ejaculatory disorders and social factors. A patient exclusion criterion was female age above 40 and sperm count less than 10 million. A minimum of three cycles were planned before referral for IVF or ICSI. Both partners were counseled about the procedure and its implications. The following investigations were carried out for the enrolled couples<sup>6</sup>. Complete physical and local exam of both husband and wife, hormonal assay and tubal patency test.

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*Gyne/Obs Department Fatima Memorial College & Hospital Lahore  
Correspondence to Dr. Fauzia Monnoo, Associate Professor  
Email: lahorehealthcare@hotmail.com*

Ovarian stimulation was carried out with clomiphene citrate (CC) and human menopausal gonadotrophins. CC 100mg per day was given from day 2 to day 6 of cycle followed by injections of human menopausal gonadotrophins, 1 to 2 ampoules per day from day 7 to day 10. Follicular tracking by endovaginal scan done on day 9 onwards on alternate days till at least one leading follicle of 18 to 22 mm was ready. At this stage 10,000 IU injection profasi (hCG) was administered intramuscular, intrauterine insemination was performed within 24 to 36 hours of injections.

The standards swim up technique was used for collection of motile and active sperms. IUI was performed using IUI Catheter and volume of 1 to 1.5 ml. gently and slowly injected in the uterus close to fundus. Patient was asked to remain supine for 10-15 minutes after the procedure<sup>7</sup>. Serum beta HCG was done two weeks after procedure. If positive support with cyclogest pessaries was started till 14 weeks of gestation.

### RESULTS

A total of 98 cycles were carried out and 11% women conceived. 7% of these women conceived after one IUI cycle, 3% after second and 1% conceived in third cycle. Out of these one ended up in miscarriage. So ongoing pregnancy rate was 10%. Only one case of mild ovarian hyper stimulation was reported. IUI was not performed in this case and patient was treated as an outpatient. Age group varied from 26 years to 39 years. Out of the eleven who conceived 88% women were under 35 years of age. Duration of infertility in most cases was more than five years.

### DISCUSSION

Intrauterine insemination (IUI) is a cost effective and non-invasive procedure. It involves preparation of semen using specialized media and methods to separate motile sperms and inject them into the

uterine cavity using an intrauterine insemination catheter.

Intrauterine insemination (IUI) is considered first line treatment for infertility due to subfertile semen. Other indications are male erectile and ejaculatory dysfunction, unexplained infertility, cervical mucous hostility and mild endometriosis. In our country a large number of male members are working abroad and visit families at an average of once a year. This is a major factor contributing to infertility intrauterine insemination (IUI) is an ideal procedure in this situation.

Wide variation exists in indication for treatment, patient selection and cycle regimens. Various studies show success rates of 10-18% per cycle. Considering an average success rate of 33% for ICSI and IVF per cycle, this is a good outcome if it saves the patient from the very expensive invasive treatments.

Although ICSI is now considered the gold standard for sub fertile semen it is expensive and invasive with success rates for 30 to 40% per cycle. Studies have shown that at least 20% of couples may be saved from this by use of IUI. Various studies have shown enhanced pregnancy rates in male factor infertility with intrauterine insemination<sup>8</sup>. Also in case of unexplained infertility of cervical mucus hostility is a factor, it can be bypassed by use IUI. In cases of male erectile dysfunction this procedure can be offered to achieve a pregnancy.

However it must be understood that intrauterine insemination (IUI) although inexpensive and non invasive is not a simple procedure and does not mean simply injecting unprepared semen in the uterus. Semen must be prepared using proper media and correct method. Success rate depends on the use of better swim up procedures enhancing sperm quality<sup>9</sup>. Risks rare associated with injecting unprepared semen for intrauterine insemination (IUI) and can lead to severe reactions and complications like infection<sup>10</sup>. Use of an intrauterine insemination catheter (IUI) or embryo transfer catheter is recommended. High count and motility of post-wash sperms improve the results<sup>11</sup>. Collection of semen in our study was by masturbation and studies show that this method is satisfactory<sup>12</sup>. Usually three to six attempts are required to get optimal results. Injecting very gently close to uterine fundus without stimulating contractions further enhances success rate.

## CONCLUSION

Most available evidence suggests the use of intrauterine insemination with or without ovarian stimulation as first line treatment for male factor and unexplained infertility<sup>13</sup>.

It can also be used in mild endometriosis and social factors as it improves pregnancy rates and may save the couple from the very expensive and invasive ICSI or IVF. It is also more readily available and associated with fewer complications.

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