



ORIGINAL RESEARCH ARTICLE

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## THE PREGNANCY RATE BY INTRAUTERINE INSEMINATION (IUI) IN MALE FACTOR INFERTILITY WITH SPERM COUNT LESS THAN THREE MILLION SPERM PER MILLILITER OF SEMINAL FLUID

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### ABSTRACT

Intrauterine insemination is one of the options for couples where the man has low sperm count (A.J. Goverde 2000). It is generally suggested in case of very mild oligospermia because this treatment requires a certain number of sperms to help in the process of fertilization which would not be possible in cases of severe oligospermia (A.J. Goverde 2000, K. Gezginç 2008). It is a simple, cost-effective technique that has usually good outcomes provided the female does not have any infertility issues resulting in a monthly pregnancy rate of 17.8. But the sample should contain at least 3-5 million motile sperms after sperm processing (The European IVF-monitoring programme 2006). For IUI a semen sample is needed, then it is washed, weak inactive sperms are removed, and the sperm cells are directly inserted into the uterus through a catheter that is inserted through the cervix. The reason for this is to put more sperms closer to the egg, so the distance the sperms need to travel is reduced and they have to make a short journey from the uterus to the fallopian tube. Our study evaluate the pregnancy rate with IUI procedure in 50 couples with male factor infertility and sperm count less than 3 million per milliliter of semen. Fifty couples complaining from more than one year of primary infertility due to male factor with sever oligospermia with sperm count less than 3million/milliliter of semen shifted to IUI for assisted pregnancy in private infertility hospital in Baghdad. Those 50 couples had multiple factors of male infertility. Twelve patients had a history of varicocele with poor response to surgery, the other 38 patients had idiopathic oligospermia in which clinical examination and hormonal assay was normal. 7 couples (14%) get a positive pregnancy test by serum at day 30 of cycle by serum, and 3 couples (6%) couples get gestational sac at trans vaginal ultrasound at fifth week from last menstrual period. It was concluded that pregnancy rate is significantly lower in IUI procedure in male factor infertility with sperm count less than 3 million/ml of the sperm.

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### INTRODUCTION

The first paper entitled intrauterine insemination (IUI) was published in 1962 (Cohen, 1962) (Gezginç 2008). Since then IUI has evolved through innovations such as sperm preparation, monitoring for pre-ovulatory timing and induction of ovulation with human chorionic gonadotropin (hCG) (Demiroglu 2007; Hwang 2003).

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The European IVF Monitoring Program in 2004 reported 98388 IUI cycles from 19 countries leading to 12081 births (12.3% per cycle), of which 87% were singleton and 13% were multiple births (Bagis 2010). In IUI, the man's sperm is prepared and placed in the uterine cavity. Thus, the sperm is close to the place where the embryo is made (at fallopian tubes). IUI can be performed with or without ovarian hyper stimulation (OH) (Freour 2008). In an OH cycle, women receive drugs to stimulate the ovaries (the organs that produce the eggs (called oocytes)) to increase the number of available oocytes. The main side effects of these drugs are multiple pregnancy and ovarian hyper stimulation syndrome.

**Table 1. The positive pregnancy test and the document pregnancy in 50 infertile couple for idiopathic and post-varicocele male factor infertility**

Total no. 50	-ve Pregnancy test	+ve Pregnancy test	Document pregnancy by US
Idiopathic infertile male 38(76%)	33	5	3(6%)
Varicocele treated infertile male 12 (24%)	10	2	0(0%)

IUI is not recommended for the following conditions:

- Fallopian tube adhesions.
- Severe pelvic inflammatory diseases.
- Endometriosis.
- Cervical stenosis.

**IUI technique:** Before inseminations ovulation induction technique used in which careful ultrasound monitoring for eggs maturation then insemination done round the ovulation period, typically 24-36 hours after LH injection. A semen sample will be washed by lab. To separate the sperm from the seminal fluid. This washing can remove potentially toxic chemicals possibly present in the sperm. These chemicals can sometimes cause an allergic reaction in women, which could hinder pregnancy. This washing and preparation process also concentrates the sperm into a high volume. This high concentration helps the healthiest, most mobile sperm to reach the egg. This helps to increase IUI success rates. A special catheter will then use to push the sperm directly to the uterus and by this process a maximum number of sperm will be available near the ova to increase possibility of conception. This procedure takes few minutes with minimal discomfort, the next step is waiting signs and symptoms of pregnancy.

## PATIENTS AND METHODS

This is a prospective randomized study type in which 50 couples with primary infertility due to male factor with severe oligospermia and sperm count less than 3 million/ml of semen in Baghdad from MAY 2016 to DECEMBER 2017. All couples were thoroughly examined and female factor infertility was excluded. Those couples shifted to IUI program where induction of ovulation by clomiphene citrate 50mg twice daily from day 2 to day 7 of the cycle with transvaginal ultrasound monitoring till mature ova were visualized. Recombinant leutinizing hormone injection (pregnyl 75 mg) given round day 11 to 13 of the cycle then IUI done 24-36 hours later at the hospital.

### Tools

- Clomiphene citrate 50 mg.
- Transvaginal ultrasound.
- Pregnyl injection 75mg.
- Medical lab. for sperm washing.
- Special catheter for insemination.

## RESULTS

The positive pregnancy test in serum (14%) while the document pregnancy rate was (6%) as in the Table 1.

## DISCUSSION

From the above result the success rate of pregnancy for those 50 couples with male factor infertility with count less than 3 million sperm/ml of seminal fluid was 6% in comparison with

pregnancy rate with IUI in male factor infertility with sperm count between 3-5 million sperm/ml of seminal fluid which range from (15-20%). Pregnancy test was positive with 7 females in serum at day 30 of the cycle which repeated twice for every patient to decrease false positive lab. results. Only 3 females of the 7 females proceeded to clinical pregnancy proved by transvaginal ultrasound. Furthermore it seems that in females in which their husbands had previous varicocele surgery their pregnancy test were positive in 2, while none of them get document pregnancy. Additional results gain from the study is 4 females with positive pregnancy test at day 30 of the cycle failed to have document pregnancy at transvaginal ultrasound which may be due to early miscarriage due to undiagnosed female factor infertility. Many studies try to focus on male factor infertility with oligospermia and IUI, most of the study were dealing with male factor infertility with sperm count more than 5 million sperm/ml. The pregnancy rate of these studies was ranging from 9% to 18% for each cycle but on repeated cycles the rate may be elevated up to 40%. Aribarg A<sup>1</sup>, Sukcharoen N, concluded that IUI should be considered as a useful and relatively non-invasive therapeutic modality for treating caused by moderate oligozoospermia ( $> 5 \times 10^6$ /ml), when sexual intercourse fails. Centola GM<sup>1</sup>. 1991 Concluded that acceptable pregnancy rates can be achieved with IUI, even in severely oligozoospermic specimens less than (1.7 million/milliliter) of semen. Intrauterine insemination is less invasive and less costly than other assisted reproductive techniques. Emad M. Siam in 2011 concluded Intrauterine insemination (IUI) is a valid treatment for infertility with a cumulative pregnancy rate of 40-90% after 3-10 treatment cycles.

### Conclusion

Our study concluded that pregnancy rate with IUI is significantly lower (6%) in male factor infertility with sperm count less than 3 million/milliliter of seminal fluid than those with much more sperm count, so, it is recommended to shift those couples to other procedure of assisted reproductive techniques like IVF and ICSI.

## REFERENCES

- Al Inany, H., H. Azab, W. El Khayat, A. Nada, E. El Khattan, A.M. Abou-Setta 2010. The effectiveness of clomiphene citrate in LH surge suppression in women undergoing IUI: a randomized controlled trial *Fertil Steril* .....
- Allegra, A., A. Marino, F. Coffaro, P. Scaglione, F. Sammartano, G. Rizza, *et al.* 2007. GnRH antagonist-induced inhibition of the premature LH surge increases pregnancy rates in IUI-stimulated cycles. A prospective randomized trial *Hum Reprod*, 22, pp. 101-108....
- Bagis, T., B. Haydardedeoglu, E.B. Kilicdag, T. Cok, E. Simsek, A.H. 2010. Parlakgumus Single versus double intrauterine insemination in multi-follicular ovarian hyperstimulation cycles: a randomized trial *Hum Reprod*, 25, pp. 1684-1690.....
- Demirol, A. T. 2007. Gurgan Comparison of different gonadotrophin preparations in intrauterine insemination

- cycles for the treatment of unexplained infertility: a prospective, randomized study *Hum Reprod*, 22, pp. 97-100.....
- Freour, M. Jean, S. Mirallie, M.L. Langlois, S. Dubourdiu, P. 2008. Barriere Predictive value of CASA parameters in IUI with frozen donor sperm *Int J Androl*.....
- Gezginç, K., H. G. Kırkemli, C. Celik, R. Karatayli, M.N. Çiçek, M.C Olakoglu, 2008. Comparison of single versus double intrauterine insemination Taiwan *J Obstet Gynecol*, 7, pp. 57-61.....
- Gomez-Palomares, J., B. Julia, B. Acevedo-Martin, M. Martinez-Burgos. E. Hernandez. E. 2005. Ricciarelli *International Journal of Development Research, Vol. 08, Issue, 09, pp. 22642-22644, September, 2018*  
GnRH antagonist *Hum Reprod*, 20, pp. 368-372.....
- Goverde, A.J., J. McDonnell, J.P.W. Vermeiden, R. Schats, F.F. Rutten, J. 2000. Schoemaker Intrauterine insemination or in-vitro fertilization in idiopathic subfertility and male subfertility: a randomized trial and cost- effectiveness analysis *Lancet*, 355, pp. 13-18.....
- Hwang, L., L.W. Huang, B.C.H. Hsieh, Y.L. Tsai, S.H.C. Huang, C.H.Y. Chen, M. Hsieh, Y.H. Chen 2003. PHL in Ovarian stimulation by clomiphene citrate and hMG in combination with cetrorelix acetate for ICSI cycles *Hum Reprod*, 18, pp. 45-49.....
- Monqaut, A.L., C. Zavaleta, G. López, R. Lafuente, M. 2011. Brassesco Use of high-magnification microscopy for the assessment of sperm recovered after two different sperm processing methods *Fertil Steril*, 95 (1), pp. 277-280.....
- Shahine, L.K., R.B. Lathi, V.L. 2009. Baker Oocyte retrieval versus conversion to intrauterine insemination in patients with poor response to gonadotropin therapy *Fertil Steril*, 92 pp. 1315-1317.....
- The European IVF-monitoring programme (EIM) for the European Society of Human Reproduction and Embryology (ESHRE). Andersen AN. Gianaroli L. reproductive technology in Europe, 2002. Results generated from European registers by ESHRE. *Hum Reprod* 2006; 21:1680-97.....
- Uranchimeg Dorjpurev, Akira Kuwahara, Yuya Yano, Tomoko Taniguchi, Yuri Yamamoto, Ayako Suto, Yu Tanaka, Toshiya Matsuzaki, Toshiyuki Yasu and Minoru Irahara. 2011. Effect of semen characteristics on pregnancy rate following intrauterine insemination. *J Med Invest* 58(1-2):127-33.....
- Van Rumste, M., I. Custers, F. van der Veen, M. van Wely, J. Evers, B. 2008. MolThe influence of the number of follicles on pregnancy rates in intrauterine insemination with ovarian stimulation: A meta-analysis *Hum Reprod*, 14, pp. 563-570.....

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