

Intrauterine Insemination: Evaluation of Results according To Woman's Age and Sperm Quality.

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Abstract:

Intrauterine insemination is a widely used treatment of infertility, we present data of 120 couples undergoing 250 cycles of iui, all couple underwent infertility evaluation prior to the treatment. women with normal ovulatory cycles did not receive any hormonal treatment, monitoring of ovulation was done by ultrasound. the mean number of iui per patient was 2.12, pregnancy rate per cycle in women age group of 30-34 is 10.7%, in age group of 35-39 is 9.2% and in age group above 40 years is 4.2%.

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I. Introduction:

IUI widely used as treatment of infertility. Conditions where IUI is generally done are sperm abnormalities, cervical mucous hostility and idiopathic. The absence of teratozoospermia was taken as criteria for selecting couples for IUI with infertility due to oligospermia and/or asthenozoospermia.

In a multicentre trial reporting on the use of in-vitro fertilization (IVF) and IUI, Crosignani and Walters found that both techniques were suitable for treating couples suffering from primary infertility due to oligozoospermia, asthenozoospermia or teratozoospermia. Hewitt *et al* had previously reported that IVF yielded higher pregnancy rates than IUI for most indications, however, no significant differences were noted for male factor infertility.

Many of the reported results, however, arise from studies composed of small treatment groups and fail to report correlations between specific variables that influence the success of treatment

The value of IUI in treating couples with male factor infertility remains questionable, even though a number of reports have been published in which pregnancies were achieved with a total sperm count of $1-5 \times 10^6$.

II. Methodology:

In this study a total of 120 couples received 250 cycles of IUI during period of 1.5 years in AVBRH sawangi (meghe) wardha. All couple underwent infertility evaluation prior to IUI. Women with normal ovulatory cycles did not receive any hormonal treatment. Monitoring of ovulation was done by ultrasound. candidates for IUI Women had at least one patent tube, documented by hysterosalpingography, and in some cases also by laparoscopy. Women with normal ovulatory cycles did not receive any hormonal treatment. Only women with amenorrhoea, oligomenorrhoea or anovulatory cycles received hormonal Treatment. ovulation was induced by either clomiphene citrate or by human menopausal gonadotrophin (HMG) (or follicle stimulating hormone) combined with human chorionic gonadotrophin (HCG).

Sperm preparation and IUI

The semen sample for insemination was analysed for conventional semen parameters and washed. All spermatozoa were prepared using the swim up Technique. The insemination was routinely carried out using a simple catheter. All techniques were carried out using sterile procedure. The IUI was performed with the patient in the dorsal lithotomy position.

Timing of insemination

In non-stimulated cycles and in clomiphene citrate-stimulated cycles, timing of ovulation was determined by ultrasonography.

For comparisons of an overall effect within a group and single parameters within groups, analysis was performed Using this analysis the cumulative chance of conception was calculated.

III. Results:

The mean number of IUI per patient was 2 (2.12), the pregnancy rate per cycle was 8.9%. In woman's age less than 30 years pregnancy rate per cycle was 11.5%. In women between 30-34 years of age pregnancy rate per cycle was 10.7%. Similarly for women between age of 35-39 years pregnancy rate per cycle was 9.2%, and for age group of 40-44 years it was 4.2%. No pregnancy occurred after the age of 44 years.

Table 1: Pregnancy rates per patient and per intrauterine insemination cycle with reference to the age of the woman

age	No of pt	No of cycle	Mean no of pt per cycle	No of pregnancy	Pregnancy rate per pt (%)	Pregnancy rate per cycle(%)
<30	41	78	1.9	9	21.5	11.5
30-34	38	84	2.2	9	23.6	10.7
35-39	20	32	1.6	3	15	9.3
40-44	17	47	2.7	2	11.76	4.2
>44	4	9	2.2	0	0	0.0
total	120	250	2.12	23	17.9	8.9

In Pregnancy rates according to the age of the woman and total motility of the spermatozoa, both the pregnancy rate per patient and the pregnancy rate per cycle showed a decline after the age of 39 years. However, a significant difference was found only when comparing pregnancy rates per cycle. When between-group comparisons were performed, a significant difference was observed in pregnancy rate per patient. No significant difference was evident in patients younger than 40 years, and no pregnancy occurred in the limited sample of women who were >44 years.

Table 2 : pregnancy rate after iui with respect to total motile sperm count per insemination

Total motile sperm	No of cycles	No of pregnancies	Pregnacy rate per cycle(%)
<0.5	37	1	2.7
0.5-1.0	27	1	3.7
1.1-5.0	116	14	11.0
>5.0	70	7	10
total	250	23	6.8

The pregnancy rate per cycle was significantly reduced when only $<0.5 \times 10^6$ motile spermatozoa could be inseminated. When comparing the role of age and total motile sperm count per insemination, we found that the highest pregnancy rates per cycle in patients aged <39 years were skewed to favour the couples in which the husband had a higher total motile sperm concentration per insemination. Pregnancies achieved when the male had $< 1 \times 10^6$ motile spermatozoa per insemination were only obtained in women <39 years old.

Table 3: pregnancy rate by woman's age and total sperm count per insemination

Age (yrs)	Total motile sperm count per insemination ($\times 10^6$)									
	< 0.5		0.51-1.0		1.1-5.0		>5.0		Total	
	no of cycles	Pregnancy rate per cycle	no of cycles	Pregnancy rate per cycle	no of cycles	Pregnancy rate per cycle	no of cycles	Pregnancy rate per cycle	no of cycles	Pregnancy rate per cycle
< 39 yrs	35	1(5.6)	25	1(2.8)	103	12(11.6)	66	7(10.6)	229	21 (7.6)

>39 yrs	2	0(0)	2	0(0)	13	2(15.3)	04	0(0)	21	2(9.5)
TOTAL	37		27		116		70		250	23(8.5)

From these results, it appears that even though insemination of a low number of spermatozoa influences pregnancy results the age factor probably has a greater role.

IV. Discussion:

One of the most important selection criteria for suitability of couples for treatment by IUI is the sperm quality. In this study, the pregnancy rate was significantly lower when a total of $<0.5 \times 10^6$ motile spermatozoa was used for the insemination.

couples in which the male displayed oligozoospermia or a combination of oligozoospermia and asthenozoospermia with a total motile sperm count of $< 1 \times 10^6$ spermatozoa, failed to obtain a pregnancy. This confirms previous studies in which the degree of sperm motility after semen preparation has been identified as an important factor for successful IUI (Amy and Quagliarello, 1987; Yovich and Matson, 1988; Ho *et al*, 1989).

In this study, the pregnancy rate per cycle was significantly lower for women older than 39 years. This has also been shown by Frederick *et al.*, who reported that ovarian stimulation treatment and IUI in women >40 years old had a very poor success rate. In our study no pregnancy occurred in women aged >44 years.

Mathieu *et al.* have reported that women aged <30 years were more likely to conceive than those >35 years, although this difference was not significant. Interestingly, the same authors found that the age of the male was also important, reporting that the most significant factor contributing to the decreased likelihood of pregnancy with IUI was the age of the husband.

In this study, when examining the combined effects of the woman's age and total motile sperm count per insemination, the results were skewed in favour of couples in which the woman was <40 years old and the number of motile spermatozoa inseminated was $>1 \times 10^6$.

There is no consensus about the role of ovulation induction combined with IUI. Several reports show improved pregnancy rates in cases of hormonal treatment (Amy and Quagliarello, Dodson *et al*, Serhal *et al*, Martinez *et al.*) but others do not support these data (Lalich *et al*, 1988; Corson *et al.*, 1989). Most of these studies suffer from a small patient population and lack matched control groups and well defined inclusion criteria.

In conclusion, the IUI data presented in this study substantiate previous studies showing that couples in which the male partner has a low number of motile spermatozoa at insemination have a decreased success rate. Women aged >40 years are also less likely to become pregnant with IUI. These results confirm that IUI is a useful and successful method for treating couples with infertility due to either a male factor or cervical factor. IUI will continue to be an attractive option for the treatment of infertility, particularly because of its substantial cost benefits when compared to in-vitro fertilization.

References

- [1]. Cruz, R.I., Kemmann, E., Brandeis, V.T. et al (1986) A prospective study of intrauterine insemination of processed sperm from men with oligoasthenospermia in superovulated women. *Fertil Steril.*, 46, 673-677.
- [2]. Amy, M. and Quagliarello, J. (1987) Semen quality before and after processing by a swim-up method: relationship of outcome of intrauterine insemination. *Fertil Steril.*, 48, 643-648.
- [3]. Ho, P.C, Poon, I.M.L., Chan, S.Y.W. and Wang, C. (1989) Intrauterine insemination is not useful in oligoasthenospermia. *Fertil Steril.*, 51,682-684
- [4]. Yovich, J.L. and Matson, P.L. (1988) The treatment of infertility by the high intrauterine insemination of husband's washed spermatozoa. *Hum. Reprod.*,3, 939-943.
- [5]. Frederick, JX., Denker, M.S., Rojas, A. et al (1994) Is there a role for ovarian stimulation and intra-uterine insemination after age 40? *Hum. Reprod.*,9,2284-2286
- [6]. Mathieu, C, Ecochard, R., Bied, V. et al. (1995) Cumulative conception rate following intrauterine artificial insemination with husband's spermatozoa; influence of husband's age. *Hum. Reprod.*, 10, 1090-1097.
- [7]. Lalich, f.L.A., Marut, E.L., Prins, GS. and Scommegna, A. (1988) Lifetable analysis of intrauterine insemination. *Am. J. Obstet. Gynecol.*,4,980-984.

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