



A Comparative Study Between IUI Husband V/S IUI Donor to Evaluate the Efficacy of IUI in Male Factor Infertility

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ABSTRACT

Infertility is most commonly defined as the absence of pregnancy after one year of unprotected intercourse. About 90 percentage of couples will conceive within that time. The causes of infertility include male factor contributing to 25-40 percentage, female factor 40-55 percentage and unexplained infertility. A comparative study between IUI husband v/s IUI donor. To evaluate the efficacy of IUI in Male factor infertility.

Materials and Methods:

There were 100 infertile women with male factor infertility recruited for the study. 50 patient underwent IUI (H) and another 50 patients underwent IUI (D) in infertility clinic, Pariyaram Medical College.

Results and Conclusion:

Normally, in donor insemination the sperm count of the donor semen is always more than 20 million/ml with good motile sperms. So, we expect better results. But as donor semen is cryopreserved before insemination, the quality of semen will be lower than fresh sample. So, IUI (H) and IUI (D) has almost similar outcome in the treatment of mild to moderate male factor infertility. Whereas, in severe male factor infertility (sperm count less than 1 million per ml) and azoospermia the outcome of IUI (D) is good, comparatively with IUI (H).

Favourable factor for treatment success for both IUI (H) and IUI (D) are age less than 40 years, duration of infertility < 6 years. Multi follicular response results has better treatment outcome than mono follicular response. As most of the pregnancies are achieved within 1-4 treatment cycles, not more than 4 cycles should be performed in both IUI (H) and IUI (D).

KEYWORDS

IUI- Intra Uterine Insemination, IUI (H)- Intra Uterine Insemination (husband), IUI (D)- Intra Uterine Insemination (donor), HMG- Human Menopausal Gonadotrophin, HCG- Human Chorionic Gonadotrophin, CC- Clomiphene Citrate

Introduction:

Infertility and subfertility are estimated to affect approximately one in seven couples worldwide. A significant proportion of infertile males are affected either by oligozoospermia (reduced sperm production) or Azoospermia (lack of any sperm in the ejaculate). According to WHO Laboratory manual 1999 certain diagnostic terminologies are used in semen analysis.

Semen volume:

Aspermia - No semen of fluid is emitted.
Hypospermia - Less than 0.5 millilitre semen.
Hyperspermia - More than 6.0 millilitre semen.

Sperm concentration:

Azoospermia - No spermatozoa in the fluid
Oligozoospermia - Less than 10 x spermatozoa / millilitre
Polyzoospermia - More than 250 x spermatozoa / millilitre

Sperm quality:

Normozoospermia - Between 20 to 250 x spermatozoa / millilitre with more than 40 percentage sperm motility and normal sperm morphology

Sperm motility:

Asthenozoospermia - Less than 40 percentage motility.
Necrozoospermia - Absence of sperm motility
Sperm morphology:
Teratozoospermia - Morphologic abnormalities involving the head, neck or tail.

Intrauterine Insemination :

It is the first line in assisted conception treatment method as well as one of the least invasive technology.

Materials and Methods:

A comparative retrospective study between IUI (Husband) Vs IUI (Donor) was conducted in Pariyaram Medical College over a period of one year from January 1, 2014 to January 2015.

Inclusion criteria:

1. Male partners diagnosed to have oligospermia (sperm count less than million, 5 – 10 million and 20 million) oligoasthenospermia based on semen analysis.
2. Couples with male sexual dysfunction.
3. Azoospermia
4. Female partners with normal hysterolaparoscopy study.
5. Regular ovulation as on determined by serial USG.

Exclusion criteria:

1. Female partner with fibroids, endometriosis, adenomyosis.
2. Tubal pathology
3. Anovulatory cycles.

Couples with primary or secondary infertility reporting to Pariyaram Medical College diagnosed to have male factor infertility will be included in the study.

Informed written consent will be taken from the couple.

Detail semen analysis of the male partner will be done at Pariyaram Medical College as per WHO standards.

Semen preparation will be done by double density gradient method.

Donor:

An efficient and reliable storage and filing system is used. No donor semen is frozen and stored until the initial screening results are received.

The donor produces samples which are frozen and stored in liquid nitrogen dewers reserved for quarantined donors.

In the present study, we have evaluated a total of 100 IUI cycles in which a clomiphene citrate/ HMG/ HCG stimulation protocol and a standard IUI technique with partners spermatozoa for 50 patient IUI cycles, 50 IUI i.e. donor spermatozoa.

All cycles were carried out between Jan 1, 2014 to Jan 1, 2015 at the infertility clinic of Pariyaram Medical College. The study couples had at least one year of infertility and had undergone a basic infertility evaluation. Intrauterine insemination was performed using an intrauterine catheter (C Karter Delafontaine – prodimed Neuilly-eu-thelle France) with a 1 or 2 ml syringe. The catheter was gently passed through the cervical canal and the sperm suspension expelled into the uterine cavity. Insemination volume of 0.5 ml was inseminated. The women remained supine for 10 – 15 minutes after IUI. Lateral support was given. Urine pregnancy was performed on day 19 of IUI.

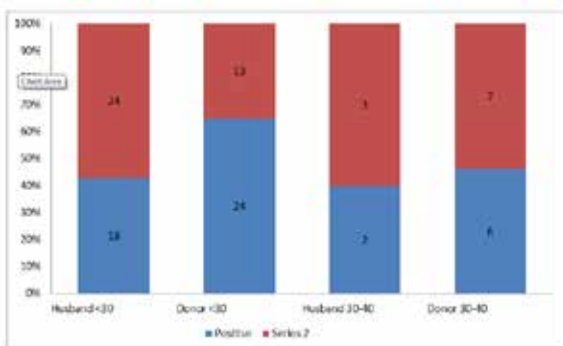
Observation and Results:

Age

The result of the comparative study demonstrates a decline in pregnancy rate with increased patients age in both IUI (H) and IUI (D)

GROUP		RESULT		TOTAL
		-ve	+ve	
Husband Age Group	<30 Count %	27 60.0	18 40.0	45 100.0
	30-40 Count %	3 75.0	1 25.0	4 100.0
	>40 Count %	0 0	1 100.0	1 100.0
	Total Count %	30 60.0	20 40	50 100.0
Donor Age group	<30 Count %	13 35.1	24 64.9	37 100.0
	30-40 Count %	7 53.8	6 46.2	13 100.0
	Count %	20 40.0	30 60.0	50 100.0

AGE GROUP VS OUTCOME

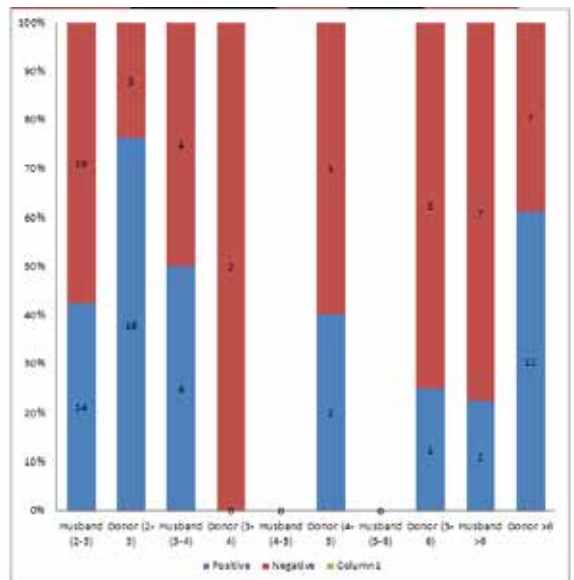


Infertility duration

We found that there was no significant difference in infertility duration for both IUI (H) and IUI (D).

INFERTILITY

GROUP		RESULT		TOTAL
		-ve	+ve	
Husband Infertility	2 – 3 yr Count %	19 57.6	14 42.4	33 100.0
	3 – 4 yr Count %	5 50.0	4 50.0	8 100.0
	>6 yr Count %	7 77.8	2 22.2	9 100.0
	Total Count %	30 60.0	20 40.0	50 100.0
Donor Age group	2 – 3 yr Count %	5 23.8	16 76.2	21 100.0
	3 – 4 yr Count %	2 100.0	0 0.0	2 100.0
	4-5yr Count %	3 60.0	2 40.0	5 100.0
	5 – 6 yr Count %	3 75.0	1 25.0	4 100.0
	>6 yr Count %	7 38.9	11 61.1	18 100.0
	Total Count %	20 40.0	30 60.0	50 100.0

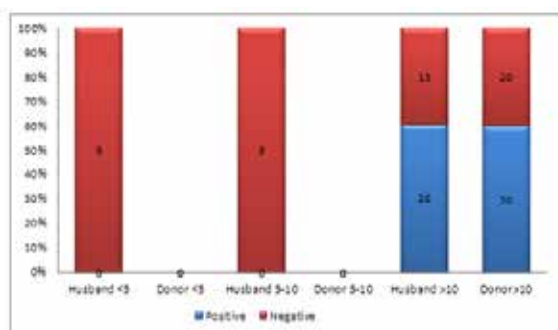


Sperm count

With a sperm count less than million/ml the success rate is 0 percentage. With 5-10 percentage also, the success rate is 0 percentage. In my study during the year 2014-2015, sperm count less than 10 million/ml with good motility had success rate around 3.2 percentage in our centre. With sperm count more than 10 million/ml, the success rate is 60.6 percentage.

In IUI (D), sperm count more than 10 million/ml gives a success rate of 60 percentage.

GROUP			RESULT		TOTAL
			-ve	+ve	
Husband Sperm Count	<5	Count %	9 100.0	0 0.0	9 100.0
	5-10	Count %	8 100.0	0 0.0	8 100.0
	>10	Count %	13 39.4	20 60.6	33 100.0
Donor Sperm Count	Total	Count %	30 60.0	20 40.0	50 100.0
	>10	Count %	20 40.0	30 60.0	50 100.0
	Total	Count %	20 40.0	30 60.0	50 100.0



Number of follicles

Multi follicular development may result in an increased number of fertilizable oocytes and a better quality endometriotic and luteal phase thereby improving fertilization and implantation rates

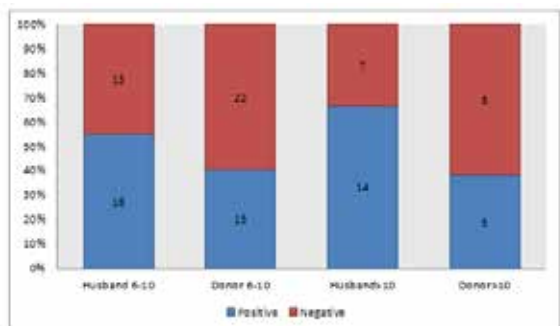
GROUP			RESULT		TOTAL
			-ve	+ve	
Husband Number of follicles	.00	Count %	3 75.0	1 25.0	4 100.0
		Count %	9 69.2	4 30.8	13 100.0
	2.00	Count %	7 46.7	8 53.3	15 100.0
		Count %	8 57.1	6 42.9	14 100.0
	4.00	Count %	3 100.0	0 0.0	3 100.0
		Count %	0 0.0	1 100.0	1 100.0
	Total	Count %	30 0.0	40.0	50 100.0
Donor Number of Follicles	.00	Count %	4 66.7	2 33.3	6 100.0
		Count %	3 37.5	5 62.5	8 100.0
	2.00	Count %	4 26.7	11 73.3	15 100.0
		Count %	3 33.3	6 66.7	9 100.0
	3.00	Count %	5 55.6	4 44.4	9 100.0
		Count %	1 33.3	2 66.7	3 100.0
	Total	Count %	20 40.0	30 60.0	50 100.0

Endometrial thickness

There is no significant difference in IUI (H) and IUI (D).

THICKNESS

GROUP			RESULT		TOTAL
			-ve	+ve	
Husband Thickness	6-10	Count %	16 55.2	13 44.8	29 100.0
	>10	Count %	14 66.7	7 33.3	21 100.0
	Total	Count %	30 60.0	20 40.0	50 100.0
Donor Thickness	6-10	Count %	15 40.5	22 59.5	37 100.0
	>10	Count %	5 38.5	8 61.5	13 100.0
	Total	Count %	20 40.0	30 60.0	50 100.0



Number of treatment cycles

Most of the pregnancy for both IUI (H) and IUI (D) have achieved within in 1-3 cycles.

NUMBER OF TREATMENT CYCLES

GROUP			RESULT		TOTAL
			-ve	+ve	
Husband Number of treatment cycles	1.00	Count %	19 70.4	8 29.6	27 100.0
		Count %	6 37.5	10 62.5	16 100.0
	2.00	Count %	4 66.7	2 33.3	6 100.0
		Count %	1 100.0	0 0.0	1 100.0
	3.00	Count %	1 100.0	0 0.0	1 100.0
		Count %	1 100.0	0 0.0	1 100.0
	Total	Count %	30 60.0	20 40.0	50 100.0
Donor Number of treatment cycles	1.00	Count %	7 36.8	12 63.2	19 100.0
		Count %	3 25.0	9 75.0	12 100.0
	2.00	Count %	3 25.0	9 75.0	12 100.0
		Count %	7 43.8	9 56.3	16 100.0
	3.00	Count %	3 100.0	0 0.0	3 100.0
		Count %	3 100.0	0 0.0	3 100.0
	Total	Count %	20 40.0	30 60.0	50 100.0

Summary and conclusion:

By evaluating the efficacy of male factor infertility- a comparative study between IUI (H) and IUI (D) in which 50 patients were IUI (H) and 50 were IUI (D) performed in Pariyaram Medical College, we came to a conclusion that:

Normally, in donor insemination, the count of donor semen is always more than 20 million/ml with good motile sperms. So, we expect better results. But, as donor semen is cryopreserved before insemination, the quality of semen will be lower than fresh sample. So, IUI (H) and IUI(D) has almost similar outcome in the treatment of mild to moderate male factor infertility. Whereas, in severe male factor infertility, sperm count less than 1 million/ml and Azoospermia, the outcome of IUI (D) is good, comparatively with IUI (H).

Favourable factor for treatment success for both IUI (H) and IUI (D) are age < 40 years old (female) duration of infertility < 6 years, multifollicular response results has better treatment outcome than monofollicular response. As most of the pregnancies are achieved within 1-4 cycles, not more than 4 cycles should be performed in both IUI (H) and IUI (D).

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