

Is it Worthwhile to Investigate the Tubes Before Doing Donor Insemination?

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Summary

A retrospective study was done of 346 cases who came for donor insemination from December 1997 to May 2000 at Srijan Centre for Assisted Human Reproduction, Patna, in which 759 cycles of intra-uterine insemination were done and 63 pregnancies were achieved. Hysterosalpingography was done in 296 cases and diagnostic laparoscopy in 64 cases. 32.78% of HSG showed some abnormality, and 5.7% showed bilateral tubal block. On laparoscopy 6.25% of the cases showed bilateral tubal block. The pregnancy rate per cycle in women who got HSG done and those who did not was not significantly different. There was no significant difference in pregnancy rate per cycle in cases showing any abnormality like unilateral block, hydrosalpinx, adhesion or endometriosis. So, routine testing for tubal patency should not be done before doing donor insemination as these group of women have lesser chances of having tubo peritoneal pathology than the women in whom male partner is not the absolute cause for sub-fertility.

Introduction

Couples who come for donor insemination do so mostly after the female partner has been investigated as the physical health of woman can affect the chances of success in donor insemination program (Acosta & Kruger, 1996). Investigations like endometrial biopsy, Rubin's test and H.S.G. are still being done at many places either before male partner's seminal status is known or even while husband's treatment for azoospermia / oligozoospermia / asthenozoospermia is still going on. In cases where the tubal status of the woman scheduled for artificial insemination (A.I.) is unknown it is often argued whether this information is necessary before starting the therapy. Many will prefer to investigate the tubes before starting A.I. while others do it after 3 or more unsuccessful attempts of A.I.

Tubal patency test before starting A.I. cycles seems justified because in cases of true bilateral block A.I. will definitely fail. In cases of unilateral patency insemination can be done in particular cycle in which follicles are developing on the patent side. It can also probably safeguard against potential medico legal cases arising when H.S.G. done after few failed A.I. shows tubal pathology and A.I. is alleged to be the cause. Moreover, it is disappointing for the couple to know after 3-6 cycles of insemination that all the expenditure and mental anguish was futile due to HSG not done initially. On the other hand, HSG itself is a painful procedure which is not completely free of risk while its sensitivity and specificity to detect tubo-peritoneal pathology is always a suspect. Laparoscopy although being definitely a better test as far as sensitivity and specificity is concerned, is a procedure where morbidity can be high.

This was a retrospective study with the following objectives:

- I. To analyse the result of tubal patency tests in cases coming for A.I.
- II. To compare the conception rate in patients who had prior tubal patency test with that in those who had no such tests performed before insemination.
- III. To correlate the findings of tubal patency tests with conception rate.

Material and Methods

This study was conducted on cases of donor insemination from Dec' 1997 to May, 2000 at Srijan, Centre for Assited Human Reproduction, Patna. Follicular stimulation was done with C.C. 50mg from 2nd to 6th day of the cycle. Follicular monitoring was started from the 10th day of the cycle using 5 MHz of the cycle using 5MHz tranvaginal probe. 5,000 I.U. of H.C.G. was given I.M. when the size of the leading follicle reached 18-24mm. I.U.I. was done only once using disposable Makler's cannula, 36 hours after H.C.G. injection. Insemination was done with cryopreserved semen specimens having more than 5 million motile sperm/ml. Follow up was done with Serum β -H.C.G. 14 days after insemination or with T.V.S. 25 days post insemination.

HSG was done on 10th day of the cycle with Urografin 70% under fluoroscopy control. Laparoscopy was done on any day between 10th and 14th day of cycle under general anaesthesia using double puncture and

video monitor. Laparoscopy was done in cases with suspicious findings on HSG or in these having clinical findings suggestive of pelvic infection or endometriosis or in these who had undergone previous 3 or more failed A.I. cycles.

Results

Altogether 346 patients came for donor insemination during the study period in whom 759 cycles of I.U.I. with cryopreserved semen were performed and 63 pregnancies were achieved.

The mean age was 28.28 (\pm 0.26) years with a range of 19 to 42 years and the mean duration of infertility was 9.31 (\pm 0.24) years. Mean no. of cycles done per patient was 2.2 (\pm 0.8) with a range of 1 to 10 cycles.

HSG was done in 296 patients and laparoscopy was done in 64 patients.

Two hundred & fourteen out of 296 HSG showed bilateral patency (72.29%), 63 unilateral patency (21.28%) and 17 bilateral block (5.74%) (Table I).

In patients with HSG showing bilateral spill without any pathology (n=199), 41 achieved pregnancy in 440 cycles. In BTP with pathology, 15 patient underwent 53 cycles achieving 4 pregnancies (Table II). Sixty three patients had only one tube patent on HSG out of whom 14 had associated pathology like adhesions and hydrosalpinx. Twelve pregnancies occurred in patients having single patent tube after 145 cycles (Table II).

Table I
HSG Findings

H.S.G.	No. of patients	No. of cycles	No. of Pregnancies	PR/cycle
Bilateral Patent	214	473	45	9.51
One Tube Patent	63	145	12	8.27
Bilateral Block	17	40	2	5
Total HSG done	296	663	59	8.89

Table II
Correlation of HSG finding to Pregnancy rate

H.S.G.	No of patients	No. of cycles	No. of pregnancies	Pregnancy Rate/Cycle
BTP-normal	199	440	41	9.31
BTP-HS	8	14	3	21.4
BTP-Adhesion	7	19	1	5.26
One TP-Normal	49	104	8	7.69
One TP-HS	5	17	2	8.33
One TP-Adhesion	5	17	2	11.76
BTB	17	40	2	5
HSG not done	50	96	4	4.16
Total	346	759	63	8.3

Seventeen patients had bilateral tubal block on HSG. Forty cycles were performed resulting into 2 pregnancies (Table I).

The odds ratio for achieving pregnancy in those who had got HSG done was 2.86 compared to that in those who had not got HSG done. (Table V). Similarly the odds ratio was positive when both tubes were patent rather than one on HSG and also when one tube was patent rather than both tubes were blocked. But in all these cases the 95% confidence interval included the value of one in its range so these findings can not be taken as conclusive (Table V).

The pregnancy rate per cycle in women having got HSG done was 4.73% higher than the pregnancy rate/ cycle in women who did not have their HSG done. Also the pregnancy rate per cycle in women having bilateral patent tubes on HSG was 1.24% higher than that in women having only one tube patent. But again, the p value was not up to the level of significance. (Table VI).

Sixty four had got diagnostic laparoscopy done 46 of these had both the tubes patent (71.87%), 14 had only one tube patent (21.87%) and 4 had both tubes blocked (6.25%). (Table III).

Among the 46 women who had both tubes open on laparoscopy, 29 had no other pathology and they had total 92 cycles of insemination resulting in 5 pregnancies. Seven had endometriosis, having 17 cycles and 2 pregnancies. Ten women had associated pathology like hydrosalpinx, pelvic adhesions and fibroids and these women had 30 cycles of insemination resulting in 2 pregnancies. (Table IV).

Among 14 women who had only one tube patent, there was only 1 pregnancy in 38 cycles of insemination. (Table III). This was in a woman who had no other pelvic pathology. The remaining 7 of unilateral patency without pathology, 5 with associated endometriosis and 1 with adhesion could not achieve any pregnancy. (Table IV).

Table IV
Correlation of Laparoscopy finding to Pregnancy rate

Lap Findings	No. of Pt.	No. of Cycles	Pregnancies	Pregnancy Rate/ Cycle
BTP - normal	29	92	5	5.43
BTP-Endometriosis	7	17	2	11.76
BTP - HS/Adhesion/Fibroid	10	30	2	6.66
One TP - Normal	8	23	1	4.37
One TP - Endometriosis	5	12	0	0
One TP - Other pathology	1	3	0	0
Total Lap done	64	187	10	5.34

Table V
Odds ratio for achieving pregnancy

Group 1	Group 2	Odds ratio	95% C.I.
H.S.G. done	H.S.G. not done	2.86	0.99 - 8.26
B.T.P. on H.S.G.	One Tube Patent on H.S.G.	1.13	0.55 - 2.30
One Tube Patent on H.S.G.	Bilateral Tubal Block on H.S.G.	1.94	0.43 - 8.74
BTP on Lap	One Tube Patent on Lap	2.48	0.28 - 21.48
Normal BTP on Lap	Normal One Tube Patent on Lap	1.45	0.14 - 14.63
Normal H.S.G.	Normal Lap	1.24	0.44 - 3.46
Abnormal H.S.G.	Abnormal Lap	0.43	0.13 - 1.42

Table VI
Comparison of Pregnancy Rate/Cycle

Group 1	Group 2	Difference in PR/Cycle	p-value
HSG done	HSG not done	4.73%	0.17
BTP on HSG	One Tube Patent on HSG	1.24%	0.77
Normal HSG	Normal Lap	3.88%	0.31
Abnormal HSG	Abnormal Lap	1.01%	0.93

In 4 patients who had bilateral block on laparoscopy, no pregnancy was achieved in total 10 cycles of treatment. (Table III).

The O.R. for achieving pregnancy in women with both tubes patent on laparoscopy was 2.48 compared to women who had only one tube patent. (Table V).

The O.R. was 1.24 in favour of H.S.G. when compared to laparoscopy in women having both tubes patent without any associated finding. The O.R. was 0.43 in HSG compared to laparoscopy among the patients having any other finding. (Table V).

If we compare the pregnancy rate per cycle in patients with normal H.S.G. findings with normal laparoscopy finding, there was a difference of 2.55% in favour of normal H.S.G. group ($p=0.31$). Even in abnormal H.S.G. findings there was 1.01% higher PR/cycle than abnormal laparoscopic findings ($p=0.93$) (Table VI).

Discussion

Various studies done in past have quoted the incidence of HSG being done before donor insemination as 75% (Edmonds et al 1981). The incidence of abnormal findings on HSG in this group of women ranged from 19% (Edmonds et al 1981) to 28% (Nash et al 1979). In our study 84.5% women had got HSG done before insemination and incidence of abnormal findings on HSG was 32.78%.

The incidence of bilateral tubal block on baseline HSG in these women is reported to be around 4% (Stovall et al 1992, Nash et al 1979). In our study, the incidence of bilateral tubal block on HSG was 5.7% ($n=17$). On doing laparoscopic examination in these 17 women, only one woman was confirmed to have bilateral tubal block.

Even the yield in cases where laparoscopy was done for other abnormal findings on H.S.G., the findings could be corroborated in only 21% of the cases and it did not have any significant effect on pregnancy rate.

In various studies done in the past, no significant difference in pregnancy rate was found in women with normal HSG and those with unilateral tubal block (Stovall et al 1992, Bradshaw et al 1987) or in women with normal HSG and those with abnormal HSG (Edmonds et al 1981). In this study, the odds ratio (O.R.) for achieving pregnancy was higher when HSG was done than not done, higher in bilateral versus unilateral patency and higher in unilateral block than bilateral block. Anyhow, the increased chances in these groups were statistically not significant.

Similarly, on laparoscopic evaluation too, O.R. for conception was higher for bilateral than unilateral tubes, though the result was not conclusive if statistically tested.

Conclusion

This study shows that there is no significant advantage of investigating the tubal status of women scheduled for donor insemination in the absence of relevant clinical history or physical findings. Neither HSG nor laparoscopy is indicated to screen these women as the yield of these investigations and their effect on pregnancy rates is not significant in this particular scenario.

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