

Comparison between two intrauterine insemination regimens in Patients undergoing controlled ovarian hyperstimulation

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Summary : A retrospective study of intrauterine insemination performed at Manipal Assisted Reproduction Centre during a twelve month period between July 1994 and June 1995 was undertaken to compare single and double intrauterine inseminations. Ovulation induction was done as a sequential regimen using Clomiphene Citrate and Human Menopausal Gonadotrophins. All patients had unexplained infertility. A total of 205 patients underwent intrauterine insemination with a pregnancy rate of 20% (41 pregnancies). 20 of these pregnancies were after single intrauterine insemination (9.7%) and 21 were after double intrauterine insemination (10%). In patients undergoing controlled ovarian hyperstimulation and intrauterine insemination, multiple inseminations do not have much advantage over single intrauterine insemination.

Introduction

The combination of controlled ovarian hyperstimulation and intrauterine insemination is gaining acceptance for a variety of fertility disorders. This therapy is less expensive and less invasive compared to other assisted reproductive technologies. Various methods of timing intrauterine insemination (IUI) in controlled ovarian hyperstimulated cycles has been described. These include basal body temperature chart, LH monitoring, evaluation of the cervical mucus and ultrasonography. The use of Human Chorionic gonadotrophin (HCG) as an ovulation trigger in cycles of controlled ovarian hyperstimulation may afford the opportunity to define a relatively narrow window of time during which ovulation should occur. Theoretically this should allow more precision in timing of IUI in relation to ovulation. IUI can be performed either as a single procedure in the periovulatory period or can be repeated twice in the periovulatory period. The objective of this study was to compare single and double IUI in controlled ovarian hyperstimulation.

Materials and Methods

A retrospective study was undertaken to compare single and double intrauterine insemination at Manipal Assisted Reproduction Centre, KMC Manipal. 205 patients with unexplained infertility were studied. Patients underwent ovulation induction with a sequential regimen of Clomiphene Citrate (CC) and Human Menopausal Gonadotrophins (HMG). CC 50 mg was given from Day 2 - Day 6 and HMG 75 IU from Day 7 - Day 10. Patients underwent follicular imaging from Day 11 onwards with transvaginal sonography. Human Chorionic Gonadotrophin (HCG) 5000 IU was given as a single intramuscular dose, when the leading follicle was 18-20mm. All patients had daily follicular imaging until ovulation was documented sonographically. USG evidence of ovulation was defined by either disappearance of follicle or obvious collapse of follicle or formation of echogenic corpus luteum. Patients undergoing single IUI received IUI as a single procedure 36 hours after HCG. Patients undergoing double IUI received IUI as a double procedure once 36 hours after HCG and once more on the following day if the follicle had not ruptured on the previous day.

Semen samples were prepared for IUI after liquefaction at room temperature. Sperm preparation was done using swim up technique after repeated washing and centrifugation with Ham F-10 media. Patients were randomized to receive either single or double intrauterine insemination.

TVS was performed four and half weeks after ovulation to document pregnancy. Intrauterine pregnancy was defined as one with cardiac activity documented on transvaginal sonography.

Results :

A total of 205 patients underwent intrauterine insemination after controlled ovarian stimulation in this study. There were a total of 41 pregnancies with a pregnancy rate of 20% (Table 1)

Table I

Total no of patients	205
No. of pregnancies	41
Pregnancy rate	20%

There were a total of 900 cycles. 425 of these were single IUI cycles and 475 of these were double IUI cycles. (Table II)

Table II

Total No of cycles	900
Single	425
Double	475

Pregnancy rate was 9.7% (20 pregnancies) for single IUI group and 10% (21 pregnancies) for double IUI group. (Table III).

Table III

Comparison between Single and Double IUI

	Single (425 Cycles)	Double (475 Cycles)
No. of pregnancies	20	21
Pregnancy rate	9.7%	10%

Discussion

IUI is used to treat infertility in recent years. Controlled ovarian stimulation and IUI has also been advocated as an empirical therapy for unexplained infertility (Corson et al, 1984). Despite widespread use of controlled ovarian stimulation there are limited data regarding the optimal regimen for IUI. Silverberg et al (1992) observed no difference in pregnancy rates in single and double IUI. A second IUI seems to offer improved changes of conception for all patients undergoing controlled ovarian stimulation, especially because ovulation of oocytes does not occur in a synchronized pattern, but rather in waves of release after hCG administration. Because insemination bypasses the cervical mucus which ordinarily acts as a reservoir for sperm at midcycle a single IUI might miss later released cohorts of oocytes. This phenomenon appeals to double IUI. Our study did not show any significant differences in pregnancy rate between single and double IUI group. In conclusion our data does not support the hypothesis that doubling the number of inseminations significantly improves pregnancy rate over a single well timed IUI. We therefore suggest that a single well timed IUI is sufficient in women undergoing controlled ovarian hyperstimulation and intrauterine insemination.

References

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