Immediate ambulation after embryo transfer: a prospective study

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Objective: To assess whether bed rest following the embryo transfer (ET) procedure contributes to the implantation process and pregnancy rate.
Design: A prospective (patient-influenced) study.
Setting: An in vitro fertilization (IVF) unit of an academic medical center.
Patient(s): Four hundred six patients undergoing controlled ovarian hyperstimulation and IVF.
Intervention(s): All women undergoing in vitro fertilization-embryo transfer (IVF-ET) cycles in our unit were given a special individual counseling session before the ET procedure in which they were informed that our previous experience showed no advantage for bed rest over immediate ambulation after ET. The women were allowed to select the practice of their choice, and they were assured that their decision would have no influence on their further treatment.
Main Outcome Measure(s): The stimulation pattern and cycle outcome were compared between the two groups (bed rest and immediate ambulation).
Result(s): Of the 406 patients counseled during the study period, 167 preferred immediate ambulation and 239 opted to stay in the unit for 1 hour's bed rest. There were no significant differences between the groups in mean patient age, number of embryos transferred, and other variables of the assisted reproductive technique cycles. Pregnancy rates did not differ between the groups: 41 out of 167 (24.55%) in the immediate-ambulation group and 51 out of 239 (21.34%) in the bed-rest group.
Conclusion(s): Immediate ambulation following the ET procedure has no adverse influence on the ability to conceive. (Fertil Steril® 2005;83:594–7. ©2005 by American Society for Reproductive Medicine.)

Key Words: Bed rest, embryo transfer, ambulation

Most assisted reproductive technique (ART) units worldwide follow a policy of bed rest immediately after the embryo transfer (ET) procedure, on the assumption that it facilitates implantation and thereby improves the chance of pregnancy. This approach, however, is not grounded on evidence-based trials, and it has recently been questioned by several authors (1–6). Moreover, although bed rest is apparently one of the most commonly prescribed treatments to improve reproductive outcome (7), most clinicians consider it the least important factor (8). Nevertheless, even when their doctors suggest that they return to a normal routine, patients tend to restrict their daily activities following ET (9).

An interesting by-product of a previous study by our group on an unrelated topic was the finding that immediate mobilization after ET had no adverse effects on pregnancy rate (10). Prompted by this initial experience, we sought to further investigate this issue in a prospective (patient-choice) manner.

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MATERIALS AND METHODS

The study was conducted at the Rabin Medical Center (Golda Campus) ART Unit during 2001. Frozen-thawed cycles were excluded. The ovarian stimulation protocol used in our center, our methods of ultrasound and hormonal surveillance, timing of human chorionic gonadotropin (hCG) administration, oocyte retrieval, sperm processing, and embryo culture, and our laboratory technique for standard in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI) methodology have all been detailed previously (11). The ICSI was carried out when the couple fulfilled one of the following criteria: [1] poor semen characteristics ($<5 \times 10^6$ total motile sperm in the ejaculate before processing) or [2] $<30\%$ fertilization rate in a previous standard IVF cycle. Embryo morphology was graded before ET: Cleaving embryos were selected for transfer or freezing on the basis of their morphologic score. Embryos with equal-sized blas-

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TABLE 1

Pertinent clinical data of the patients.[a]

	Study group (immediate mobilization) n = 167	Control group (bed rest) n = 239
Age (y)	34.2 ± 0.46	34.2 ± 0.39
No. of previous IVF cycles	3.2 ± 0.3	4.0 ± 0.3
No. of gonadotropin ampules used	33.6 ± 1.4	31.7 ± 1.2
E_2 level on day of hCG administration (pmol/L)	4,338 ± 327	4,411 ± 285
Progesterone level on day of hCG administration (nmol/L)	4.8 ± 0.3	4.3 ± 0.25
No. of oocytes retrieved	8.7 ± 0.49	9.5 ± 0.44
Fertilization rate (%)	57 ± 2	59 ± 2
No. of embryos transferred	2.7 ± 0.12	2.9 ± 0.11
% of day 2 transfer	52	48
No. of grade A embryos transferred	1.7 ± 0.11	1.9 ± 0.11
% of patients undergoing ICSI	55	50
Pregnancy rate	41/167 (24.55%)	51/239 (21.34%)

Note: None of the differences between the groups for any of the parameters was significant by Student's *t*-test or χ^2 test; E_2 = estradiol; hCG = human chorionic gonadotropin; ICSI = intracytoplasmic sperm injection.

[a]Values are mean ± SE.

Bar-Hava. Immediate ambulation after embryo transfer. Fertil Steril 2005.

tomeres, ideal cleavage rate (4 cells on day 2 or 8 cells on day 3), and <10% fragmentation were defined as grade A. All embryos were left in culture until the embryo transfer day (day 2 or 3 after oocyte retrieval). A computerized database was created, and all pertinent clinical data were collected prospectively and evaluated at the end of the study period.

A special counseling session was conducted before the ET procedure in which the women were informed that in our experience (10), immediate ambulation following ET had no effect on the chance of conceiving compared to bed rest. Thereafter, the women were allowed to select the practice of their choice. They were assured that their decision would have no influence on their future treatment. Those who chose to rest were kept in bed for 1 hour following the procedure. The others were mobilized immediately. Written informed consent was obtained from all patients before participating in the study.

SPSS software (version rel.11.0, for Windows) was used for the statistical analysis. Data are given as means and standard errors. Chi-square and Student's *t* test were used, as appropriate, to compare the two groups (bed rest and immediate ambulation) for patient and procedure-related variables and outcome.

RESULTS

Of the 406 women undergoing IVF-ET cycles during the study period, 167 elected to be mobilized immediately (study group) and 239 chose bed rest (controls).

There were no between-group differences in causes of infertility. Moreover, we found no statistically significant differences between the groups in patient age, number of previous IVF cycles, estradiol (E_2) and progesterone (P) levels on the day of hCG administration, gonadotropin dosage, number of oocytes retrieved, fertilization rate, percentage of patients undergoing ICSI, percentage of grade A embryos transferred, or number and day of embryos transferred (Table 1).

Pregnancy rates were not significantly different between the two groups: 41 out of 167 (24.55%) in the study group compared with 51 out of 239 (21.34%) in the control group.

A further separate analysis of the aforementioned parameters in the women undergoing their first IVF cycle revealed no differences between the two groups.

DISCUSSION

This prospective (patient-influenced) clinical study addressed the question of whether bed rest after the ET procedure has any positive influence on implantation and pregnancy rate.

At the beginning of the IVF era, patients remained in complete rest for 24 hours and even longer after ET. The rationale was that this practice would prevent mechanical expulsion of the transferred embryos by gravity. As experience accumulated, the resting period was shortened in most institutes to a range of 15 minutes to 6 hours. Although several retrospective, nonrandomized studies investigated the contribution of bed rest, prospective randomized trials are lacking, and the topic is still controversial.

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