Bed rest after embryo transfer negatively affects in vitro fertilization: a randomized controlled clinical trial

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Objective: To evaluate the influence of 10 minutes of bed rest after ET on the achievement of a live-born infant (LBI) in patients undergoing IVF treatment with oocyte donation (OD).

Design: Prospective, randomized, parallel assignment, controlled trial.

Setting: Private IVF center.

Patient(s): A total of 240 patients undergoing a first IVF cycle with OD in our center.

Intervention(s): Ten minutes of bed rest after ET or no bed rest, that is, allowing patients to ambulate immediately after the ET.

Main Outcome Measure(s): The primary outcome was LBI rate per randomized patient. Secondary outcomes were implantation rate and biochemical and clinical miscarriage rates.

Result(s): LBI rates (56.7% vs. 41.6%) were observed to be significantly higher in the no rest (NR) group than in the rest (R) group. And lower miscarriage rates (18.3% vs. 27.5%) were shown in the NR when compared with the R group, but the difference did not reach statistical significance. Neonatal characteristics like height, weight, and Apgar score were similar in both the groups. Comparable implantation rates were obtained with or without BR after ET.

Conclusion(s): The statistically significant higher LBI rate shown in our NR group confirms that 10 minutes of bed rest immediately after ET has no positive effect and in fact can be negative for the outcome of IVF with OD. The anatomical/physiological or psychological reasons for this should be explored in future research.

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Key Words: In vitro fertilization, embryo transfer, oocyte donation, bed rest, immediate ambulation

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IVF has been used with increasing frequency since the world's first IVF baby was born in 1978. Since then, medical science has developed approaches such as ovulation induction, oocyte retrieval, and laboratory techniques to achieve maximal rates of success. However, in parallel to this progress, some simple procedures thought to be beneficial for the overall outcome of IVF, among which bed rest (BR) after ET can be included, have not been the focus of sufficient study. Most IVF clinics routinely recommend a variable period of BR after ET without there being any scientific evidence about its benefit [1]. Indeed, this practice encourages the belief that refraining from physical activity aids the implantation procedure, which can cause stress levels to rise as suggested by previous research [2]. Very few studies have been carried out to evaluate BR after ET. Data derived from the little research carried out about the subject to date [3–9] suggest that rest and nonrest lead to comparable results. In fact some studies have shown BR to be potentially detrimental after ET owing to the common anatomical position of the uterus [10]. A negative impact was reported in another study [11], in which the clinical trial had to be terminated for ethical reasons owing to poor results in the group instructed to have BR. The investigators in that

trial further stated that similar results may be found by other investigators, but they did not extend their studies to the question of the negative effects of the BR after ET, being satisfied with the result of "no worse results after no BR."

All the above-mentioned studies were performed with patients' own oocytes, and the data obtained were limited. In addition, ET was performed by multiple physicians, and no study followed up their patients to compare live-born infant (LBI) rates. To overcome the biases caused by differential oocyte quality—the most important factor affecting reproductive outcome (12, 13)—we performed the present study with patients undergoing IVF/intracytoplasmic sperm injection (ICSI) treatment with donated oocytes (OD). Moreover, all ETs were performed by a single experienced physician (first author) who had previously conducted >3,000 such procedures (14–16).

The aim of our study was to compare the effects of 10 minutes of BR versus no BR after ET on the achievement of an LBI in patients undergoing IVF treatment with OD. Our initial hypothesis was immediate ambulation after ET improves the outcome of the IVF treatment with OD.

MATERIALS AND METHODS
Study Sample

This was a prospective, randomized, controlled clinical trial conducted in a private infertility clinic (Instituto Valenciano de Infertilidad, Valencia, Spain). Three hundred twenty-six patients (oocyte recipients) between 25 and 49 years old who had attended our center seeking their first cycle of IVF with OD between May 2011 and November 2011 were assessed for inclusion eligibility. Eighty-six patients were excluded from our study owing to one of the following exclusion criteria: [1] presence of uterine fibroid/s, [2] history of recurrent miscarriages with more than two abortions, [3] condition of unilateral or bilateral hydrosalphinx, [4] body mass index (BMI) >28 kg/m^2, [5] decision of recipients to opt for single ET, [6] partner diagnosed severe oligoasthenoteratozoospermia, and [7] decision of recipient not to participate in the study (Fig. 1).

The detailed information of the study explaining the nature of both the groups (control group [R], 10 minutes of BR after ET; and study group [NR], allowing patients to ambulate immediately after ET) was explained to the patients in the consultation room before initiating the endometrial preparation. Randomization took place on the same day when recipients agreed to participate in the study and provided their written informed consent before appointing them for their ET. Recipients were prospectively assigned to one of the two groups by the study nurse. A total of 240 recipients were selected and randomly assigned 1:1 to the control group (R) or study group (NR) based on a computer-generated randomization list prepared by an independent statistician. The physicians, other staff nurses, and embryologists were blinded for the randomized patient's groups, as was the statistician, while only one nurse gave the instructions and confirmed in every case whether the patient obeyed the instructions. Owing to the nature of the intervention, patients were not blinded. They found out which group they had been randomized to after the termination of their ET procedure because of the

manner in which they were moved from the operating room, either with the help of a stretcher in a lying-down position to have 10 minutes of BR (R) or with immediate ambulation (NR).

The trial was approved by the Institutional Review Board on the Use of Human Subjects in Research of the Instituto Universitario–Instituto Valenciano de Infertilidad, Valencia, Spain, and complied with the Spanish Law of Assisted Reproductive Technologies (14/2006). This study was designed following the revised recommendations of the CONSORT statement for improving the quality of reports of parallel-group randomized trials (17).

Endometrial Preparation

Endometrial preparation was performed in all recipients by hormone therapy (HT). Recipients with ovarian function were IM administered a depot GnRH-a (Decapeptyl, 3.75 mg; Ipsen) in the midluteal phase of their cycle. During the first 3 days of the following cycle, HT was initiated with 6 mg/d E_2 valerate (EV; Progynova) orally and continued for 8 days. Recipients without ovarian function underwent the same protocol without the GnRH-a depot. Endometrial trilaminar aspect and thickness (equal to or more than 7 mm) were confirmed within 5–15 days by transvaginal ultrasound (USG) (18).
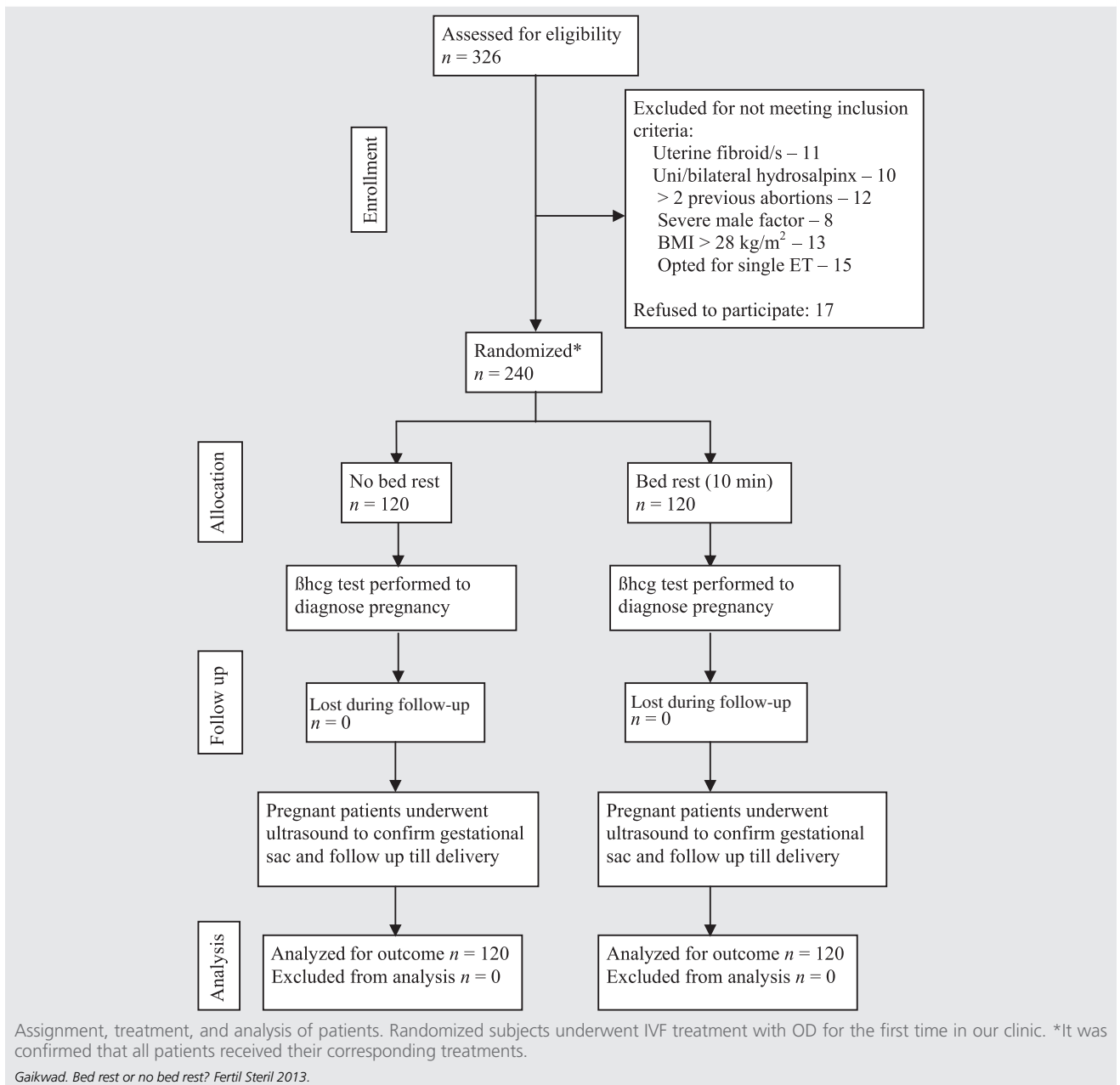
Ovarian Stimulation in Donors

The donors in our OD program were between 18 and 30 years old with BMI <25 kg/m^2. Their psychological and gynecological health was assessed, and their past and present medical and reproductive history studied. None had any family history of hereditary or chromosomal diseases, and all tested negative for sexually transmitted diseases and were confirmed to have a normal karyotype. A payment specified by the Spanish government was paid to the donors by way of compensating them for any physical discomfort experienced and inconvenience caused by their visits to the clinic (19, 20).

All donors underwent a long protocol of down-regulation with daily SC doses of a GnRH agonist (GnRH-a; Decapeptyl, 0.1 mg; Ipsen). Ultrasound was performed during the first 3 days of the menstrual cycle to ascertain ovarian quiescence, after which controlled ovarian hyperstimulation (COH) was initiated. The starting dose (first 2–5 days) varied from 150 to 300 IU/day of recombinant FSH (Gonal-F, Merck-Serono; or Puregon) and/or hMG (Menopur Ferring or hMG-Lepori Angelini) SC according to age, BMI, and response to previous COH. Subsequently, the dose was adjusted according to ovarian response, which was monitored through serum E_2 levels and ultrasound every 2–3 days. COH was continued until the diameter of the leading follicles reached 18 mm. Recombinant hCG (rHCG; Ovitrelle 250 μg, Merck-Serono) was then administered SC, and ovarian follicular aspiration was performed after 36 hours (21).

OD and ET

Recipients were matched to anonymous donors by phenotype and blood group. Micronized P (800 mg/day, vaginal; Progef-fik; Effik Laboratories) was initiated the day after OD, and two top-quality embryos were transferred on day 3 of embryo

FIGURE 1

Assignment, treatment, and analysis of patients. Randomized subjects underwent IVF treatment with OD for the first time in our clinic. *It was confirmed that all patients received their corresponding treatments.

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cleavage or day 5/6 in the blastocyst stage. Embryos were classified according to cell number, symmetry, and degree of fragmentation (22). All ET procedures were conducted in the operating theater, with the patient in the lithotomic position. After exposing the cervix with a Cusco's speculum, the exocervix was cleaned with gauze soaked in Sydney IVF Follicle Flush Buffer solution (Cook, Medical Europe Ltd). A mock ET was performed immediately before the actual ET with a Wallace embryo replacement catheter (Smiths Medical International Ltd.) under abdominal USG. The patient's bladder was partly filled for good visualization. The real ET was performed with a new Wallace catheter connected to an insulin syringe. Embryos were loaded onto the tip of the catheter, which contained ~ 20 μL of cell culture media (CCM; Vitrolife Sweden AB), and was handed to the physician who inserted it into the endocervical canal. Embryos were gently deposited 1–2 cm from the uterine fundus taking care to avoid touching the fundus. The catheter was then slowly removed in a rotating movement and microscopically examined by the embryologist to check for the presence of blood, mucus, or retained embryos (23–27). The physician performing ET classified the transfer as easy, intermediate, or difficult according to the problems encountered during the procedure. Transfer was considered easy when it occurred smoothly and the catheter was found to be clean on removal; intermediate when the primary catheter did not enter smoothly or when its outer sheath needed to be used to secure the cervical entrance, after which transfer took

place smoothly and without blood contamination; and difficult when the primary catheter met greater resistance or the procedure was time-consuming (28). Use of a tenaculum was strictly avoided. No bleeding was observed during any of the transfers carried out, and minimal spotting was observed on the catheter in a total of eight patients, for unknown reasons (Supplemental Table 1). All patients were free from abdominal pain or discomfort after ET.

Patients in the control group (R, n =120) were transferred gently to their rooms while lying down and were instructed to remain in a supine position for 10 minutes before getting up and being discharged from the clinic. Patients assigned to the study group (NR, n =120) were allowed to get up and walk immediately after ET and were discharged. A staff nurse made sure patients in both groups complied with instructions.

Patients from both groups continued pharmacological treatment (EV and P) until a pregnancy test was performed. Serum β-hCG was measured 14 days after OD (20). Follow-up of all the pregnant subjects and fetus/es was carried out in their respective clinics until delivery. After delivery, detailed information about the health of the baby (or babies in the case of twin/multiple pregnancy) was obtained by telephone, e-mail, or post.

Statistical Analysis

Based on the average live-birth rate after OD in our center over the last 5 years (60%), and assuming a 5% alpha and 20% beta risk, a sample size of 120 patients was required for each group (R and NR) to detect differences of a 15% improvement in the main outcome measure (unilateral test).

Statistical analysis was performed using t-tests to compare means and χ^2-test for proportions, given the normal distribution and sample size of our data. Data were represented as means or proportions and also as association measures as risk differences and odds ratios, with their corresponding 95% confidence intervals in brackets.

The primary endpoint was LBI rate per randomized patient (intent-to-treat approach here yields exactly the same results as computed per patient receiving the treatment, since all patients finally received the treatment to which they were assigned, as confirmed by the nurse). Secondary endpoints were implantation rate and biochemical and clinical miscarriage rates. Data regarding birth weight, height, Apgar score, and general health of live newborn infants after delivery were collected in all cases. When the serum β-hCG level rose to at least 10 IU/L 2 weeks after ET, the pregnancy was defined as biochemical. The implantation rate was obtained by dividing the number of gestational sacs revealed during USG by the number of embryos replaced. The miscarriage rate was defined as the percentage of pregnancies that terminated before completion of the twentieth week of gestation. A live newborn infant was defined as any birth event in which at least one live baby was born.

RESULTS

A total of 326 patients were assessed for eligibility to be included in this study. Eighty-six patients were excluded before randomization and received IVF treatment according to the standard protocol in our center (Fig. 1). A total of 240 patients were randomly assigned to one of the two groups. Baseline recipient characteristics and donated oocytes with embryo development parameters were similar in both groups. No difference was observed in age, BMI, and endometrial thickness obtained with HT in recipients between the groups. The fertilization rates after conventional IVF (69.7% vs. 78.10%) or ICSI (76.0% vs. 74.9%) were similar in both groups (P>.05). Moreover, the proportions of top-quality embryos were 40% versus 26.7% for day 3 and 60% versus 73.3% for day 5/6 and were similar between groups (P>.05). No significant difference was observed in the number of surplus embryos to freeze per cycle in both groups (Table 1). Baseline characteristics of donors assigned to the recipients of both groups and ovarian stimulation parameters are shown in Table 2. No difference was found between groups with respect to age or BMI (P>.05). Regarding ovarian stimulation parameters, there was no difference in the duration of COH. The starting dose of gonadotropins and serum E_2 and P levels on the day of rHCG did not differ significantly between the groups. The total number of oocytes retrieved from donors of both groups was also similar.

All ETs were performed under transabdominal ultrasound guidance, except in one patient from the NR group whom it was difficult to visualize owing to the presence of multiple abdominal scars. Only two patients had difficult transfers that required a longer time, but they took place without provoking bleeding or uterine discomfort. Immediate retransfer was required in five patients for retained embryo/s in the lumen of the inner soft catheter of Wallace (Supplemental Table 1).

The clinical outcomes of the treatment are shown in Table 3. The implantation rate was higher in the NR than in the R group, but the difference did not reach statistical significance. Ectopic pregnancies and biochemical miscarriages did not differ significantly between the groups, although a higher number of biochemical miscarriages was observed in the NR group. The clinical miscarriage rate per pregnancy tended to be much lower (decreased by almost 13%) in NR than in R.

One patient from the R group was found to have monochorionic diamniotic twins in one gestational sac and a single fetus in another sac. Embryo reduction was performed in the eighth week in our clinic so that only one embryo continued to develop. As a consequence, a single healthy baby was delivered in the 39th week (Table 3).

The LBI rate was significantly higher in the NR versus R group. A higher rate of single pregnancy per pregnancy (increased by 10%) and a twin pregnancy per pregnancy (increased by 6%) was observed in the NR group compared with in the R group, without reaching statistical significance (Table 3).

Neonatal parameters such as birth height, weight, and Apgar score were similar in both groups. Minor congenital malformations were detected in two babies, and immediate intensive neonatal care was required for one baby with amniotic fluid aspiration syndrome and for three preterm babies (Supplemental Table 2). To take one additional baby home in the NR group compared with in the R group, the number needed to treat is 7.1 (3.8–65.6).

TABLE 1

Recipient's baseline characteristics and embryologic characteristics in NR and R groups who underwent IVF-ET with OD.

Characteristic	NR	R
Recipient age	40.9 (40.1–41.6)	41.2 (40.4–42.0)
Body mass index, kg/m^2	22.4 (21.9–23.0)	22.6 (22.1–23.1)
Endometrial thickness, mm	7.9 (7.5–8.2)	7.5 (7.2–8.0)
Volume of fresh semen sample, mL	1.7 (1.5–2.0)	1.9 (1.6–2.1)
Sperm motility in prepared sample, A+B%[a]	85.5 (82.0–89.0)	86.6 (83.3–89.9)
No. of oocytes for inseminated/patient	13.3 (0.6–26.1)	8.7 (2.2–15.3)
IVF fertilization rate	69.7 (0–100)	78.10 (65.2–91.0)
No. of oocytes for ICSI/patient	11.1 (10.6–11.6)	11.2 (10.6–11.7)
ICSI fertilization rate	76.0 (73.2–78.7)	74.9 (72.1–77.7)
No. of embryos transferred	2.0 (2.0–2.0)	2.0 (2.0–2.0)
No. of frozen embryos per cycle	3.1 (2.7–3.5)	4.0 (0–10.4)
Day 3 ET, %[b]	48 40.0 (32.5–63.5)	32 26.7 (13.0–40.4)
Day 5–6 ET, %[c]	72 60.0 (44.8–75.2)	88 73.3 (59.2–87.8)

Note: Values are mean with corresponding 95% confidence interval in brackets. NR = group of patients allowed to ambulate immediately (no rest) after ET; R = control group, where patients received 10 minutes of BR immediately after ET. No significant differences were identified between the two groups.
[a] Sperm with progressive motility + nonlinear motility.
[b] Cleavage stage embryo on day 3, counting oocyte retrieval day as day 0.
[c] Blastocyst stage embryo on day 5 or day 6, counting oocyte retrieval day as day 0.

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DISCUSSION

In IVF treatments, BR for a varying period of time is commonly recommended after ET, which entails a cost and strain on space in busy IVF centers. However, the scientific basis for this practice remains to be determined. In this context we performed this research to investigate whether this advice is sound or not.

In our study, the LBI rate per ET was higher in the NR group than in the R group. This result corroborates with that of another trial in which the outcome of 30 minutes of BR versus immediate ambulation after ET was evaluated in 164 IVF cycles (6). The study showed that the ongoing pregnancy rate was higher in the ambulation group than in the rest group (50% vs. 46.3%), although the difference was not statistically significant. In that case, patients were followed up until the 20th week of gestation.

Our study also supports the conclusion of another study that demonstrated how the cavity of the uterus is in a more horizontal position when a woman is standing than when she is lying down; hence, with an anteverted anteflexed uterus in the absence of a distended urinary bladder, BR after ET was

logically irrational (10). The investigators argued that if the force of gravity causes the loss of transferred embryos, a horizontal/supine position post-ET is undesirable. As a result, they terminated the practice of ensuring 30 minutes of BR after ET and encouraged their patients to stand up and continue with their routine activity immediately after the ET procedure. They saw how the clinical pregnancy rate among their patients increased from 21% (28 of 101) over the 3 months before the study to 42% (15 of 36) during the study period.

Similar results were obtained in a trial performed in the United Kingdom in which 1,019 IVF cycles without BR after ET were compared with a historical cohort of 19,697 IVF cycles in which BR had been enforced (9). A favorable pregnancy rate (23.5% vs. 18.6%) was achieved among the former population.

Another trial comparing longer versus short BR periods after ET substantiate comparable results, thus endorsing the hypothesis that gravity is unlikely to affect the position of the embryo within the uterine cavity after transfer (7). Similar results were obtained in a study in which vaginal USG ET was followed by a second US immediately afterward with the

TABLE 2

Baseline characteristics and ovarian stimulation cycle of donors assigned for patients from NR and R groups.

Characteristic	NR	R
Donor age	25.9 (25.22–26.6)	27.0 (26.3–27.7)
Body mass index, kg/m^2	22.3 (21.7–22.9)	22.0 (21.5–22.5)
Total dose of rFSH used in donors, IU	1,670.3 (1,564.5–1,776.2)	1,877.0 (1,742.4–2,011.6)
Total dose of LH used in donors, IU	400.0 (111.2–688.8)	570.0 (211.7–928.3)
Total dose of hMG used in donors, IU	1,526.4 (1,305.0–1,748.0)	1,784.2 (1,534.3–2,034.1)
E$_2$ on day of rhCG in donors, pg/mL	2,597.6 (2,364.1–2,831.1)	2,591.1 (2,369.7–2,812.5)
P on day of rhCG in donors, ng/mL	0.96 (0.86–1.07)	0.99 (0.88–1.11)
Stimulation period, days	15.3 (14.4–16.3)	14.7 (13.8–15.6)
No. of retrieved oocytes per donor	13.0 (12.1–14.0)	13.1 (12.1–14.2)

Note: Values are mean with corresponding 95% confidence interval in brackets. NR = group of patients allowed to ambulate immediately (no rest) after ET; R = control group, where patients received 10 minutes BR immediately after ET; rFSH = recombinant FSH. No significant differences were identified between the two groups.

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TABLE 3

Outcomes for NR and R groups who underwent IVF treatment with donated oocytes.

Clinical trial outcome	NR (n = 120)	R (n = 120)	Risk difference odds ratio	P value
β-hCG positive tests	90 (75.0) [66.6–81.9]	83 (69.2) [60.4–76.7]	5.8 [0–17.0] 1.1 [0.9–1.2]	.32
Implantation rate	(45.8) [38.8–52.9]	(41.7) [34.6–48.7]	4.1 [−4.7 to 13.1] 1.2 [0.8–1.7]	.35
Total miscarriages	22 (18.3) [12.4–26.2]	33 (27.5) [20.3–36.1]	−9.2 [−19.7 to 1.4] 0.6 [0.3–1.1]	.09
Biochemical miscarriages (% per pregnancy)	12 (13.3) [6.3–20.4]	10 (12.0) [5.0–19.0]	1.3 [−8.6 to 11.2] 1.1 [0.5–2.8]	.80
Clinical miscarriages (% per pregnancy)	10 (11.1) [4.6–17.6]	20 (24.0) [24.0–26.2]	−13.0 [−4.4 to −1.7] 0.4 [0.2–0.9]	.04
Ectopic pregnancy	0	3	Not applicable	.21
Deliveries (% per patient)	68 (56.7) [47.7–65.2]	50[a] (41.6) [33.2 to 50.6]	15.0 [2.5–27.5] 1.8 [1.1–3.1]	.02
Single pregnancies (% per pregnancy)	39 (43.3) [33.1–53.6]	28 (33.7) [23.6 to 43.9]	9.5 [−4.8 to 24.0] 1.5 [0.8–2.8]	.20
Twin pregnancies (% per pregnancy)	29 (32.2) [22.6–41.9]	22 (26.5) [17.0–36.0]	5.7 [−7.8 to 19.3] 1.3 [0.7–1.9]	.41
Total live newborn infants	97	72		

Note: Values are means, with percentages in parentheses and corresponding 95% confidence interval in brackets. NR = group of patients allowed to ambulate immediately (no rest) after ET; R = control group, where patients received 10 minutes of BR immediately after ET. No significant differences were identified between the two groups.
[a] One patient had monochorionic diamniotic twins in one gestational sac and a single fetus in another sac.

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patient in standing position to allow assessment of embryo-associated air movement (29). As no movement of embryo-associated air out of the uterine cavity was detected, the investigators concluded that standing shortly after ET does not have a significant effect on the final position of embryo-associated air and is unlikely to be a factor in determining the position of embryos transferred to the uterine cavity during IVF treatment.

In another study, 406 patients undergoing IVF treatment were analyzed, from which 167 patients chose immediate ambulation while 239 preferred 1 hour of BR after ET (2). In light of the better results obtained in the active group, the investigators speculated that the patients who chose to get up and walk may have felt more confident and less stressed than those in the other group, and this state of mind could have contributed to their chances of conceiving.

Similarly, optimistic women had lower anxiety and distress in pregnancy, which mediated effects on birth outcomes. The pathways whereby dispositional optimism and related concepts such as mastery and self-esteem influence pregnancy outcomes may involve health behaviors and coping, both of which merit further investigation (30).

We believe that encouraging patients to follow their daily routine immediately after ET may help them to cope with anxiety during treatment and thereafter to increase their skills in maintaining relaxation throughout the treatment, and this may be one possible reason behind our obtained results.

In the same context, a survey of 281 patients waiting for assisted reproduction in five IVF centers in three countries led to the conclusion that women with fertility problems self-report a higher prevalence of negative psychoemotional experiences than women without fertility problems, both before and during diagnosis and treatment (31).

Psychological evaluation of couples with mechanical and unexplained infertility showed that patient anxiety and depression scores were significantly higher than the norm for the population. Baseline stress is known to affect biologic endpoints: number of oocytes retrieved and fertilized,

pregnancy, delivery of a live infant, and birth weight. Moreover, the stress factor plays a strong role in implantation failure and abortion (32–34). A prolonged period of stress and anxiety has also been associated with high amounts of activated T cells in the peripheral blood. In turn, such immunological changes are associated with reduced implantation rates in women undergoing IVF (35).

Additionally, one recent review concluded that accumulated data indicate that BR after ET or restriction of physical activity during assisted reproductive techniques (ART) not only fails to bring about benefits but may actually be detrimental and is associated with worse ART outcome (36).

Knowing the anatomical/physiological or psychological rational behind our obtained results merits further investigation with large samples. However, a decreased miscarriage rate and significantly higher LBI rate in the NR than in the R groups of our study would suggest that immediate ambulation after ET should be recommended.

The recommendation to get up and walk after ET may decrease the stress levels of patients, which would cause worry about the possible consequences of their physical movements. In addition, BR is time-consuming and costly for patients and increases the space occupancy in IVF clinics (8). Indeed, this procedure increases the waiting time for the following patient, leading to stress for both patients and physicians.

In conclusion, the favorable results obtained in our NR group suggest that BR after ET has a negative rather than positive effect on the outcome of IVF treatment. Our results point to a need for a change of practice in IVF clinics.

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SUPPLEMENTAL TABLE 1

Characteristics of ET in NR and R groups who underwent IVF-ET with OD.

Characteristic	NR	R
Partly filled bladder	119 (99.1) [97.4–100]	117 (97.5) [94.7–100]
Ultrasound guidance	119 (99.1) [97.4–100]	120 (100)
Easy ET	113 (94.2) [90.0–98.4]	112 (93.3) [88.8–97.7]
Intermediate ET	5 (4.2) [0.69–7.8]	8 (8.4) [3.4–13.4]
Difficult ET	2 (1.7) [0–4.0]	0
Transfer repeated	2 (1.7) [0–4.0]	3 (2.5) [0–6.4]
Spotting (minimal)	4 (3.3) [0.1–6.5]	4 (3.3) [0.1–6.5]
Wallace guided with outer sheath	13 (10.8) [5.3–16.4]	14 (11.6) [5.9–17.3]

Note: Values are means with percentages in parentheses and corresponding 95% confidence intervals in brackets. NR = group of patients allowed to ambulate immediately (no rest) after ET; R = control group, where patients received 10 minutes BR immediately after ET. No significant differences were identified between the two groups.

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SUPPLEMENTAL TABLE 2

Neonatal characteristics of LBIs from NR and R groups who underwent IVF-ET with OD.

Characteristic	NR	R
Weight at birth, g	2,564.5 (2,279.7–2,849.3)	2,940.9 (2,700.0–3,181.9)
Height at birth, cm	48.6 (47.1–50.0)	50.7 (49.4–52.0)
Cranial perimeter, cm	34.0 (33.1–34.9)	34.9 (33.4–36.4)
Apgar 1′	9.0 (8.7–9.3)	9.3 (9.0–9.6)
Apgar 5′	9.9 (9.5–10)	9.9 (9.6–10)
Apgar 10′	9.8 (9.2–10)	10
Pathologies	1[a]	2[b,c]
Intensive care admissions[d]	2	1

Note: Values are mean with corresponding 95% confidence interval in parentheses. NR = group of patients allowed to ambulate immediately (no rest) after ET; R = control group, where patients received 10 minutes BR immediately after ET. No significant differences were identified between the two groups.
[a] Small atrial septal defect.
[b] Amniotic fluid aspiration syndrome.
[c] West's syndrome.
[d] Preterm newborns.

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