Table I. Results of IVF and ET in Women with Mechanical Infertility, 10 Feb.-14 Aug. 1983

<table>
<thead>
<tr>
<th>Induction of ovulation</th>
<th>Total</th>
<th>Clomiphene citrate</th>
<th>HMG</th>
<th>Clomiphene citrate + HMG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laparoscopies</td>
<td>44</td>
<td>18</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>Laparoscopies + eggs (eggs)</td>
<td>44 (138)</td>
<td>18 (44)</td>
<td>9 (25)</td>
<td>17 (69)</td>
</tr>
<tr>
<td>Laparoscopies + fertilization (eggs)</td>
<td>42 (100)</td>
<td>16 (33)</td>
<td>9 (22)</td>
<td>17 (45)</td>
</tr>
<tr>
<td>Transfers (eggs)</td>
<td>41 (90)</td>
<td>16 (31)</td>
<td>8 (20)</td>
<td>17 (39)</td>
</tr>
<tr>
<td>β-HCG</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Ongoing pregnancies</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Fertilization rate per laparoscopy (%)</td>
<td>95.5</td>
<td>88.9</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Fertilization rate per eggs recovered (%)</td>
<td>72.5</td>
<td>75.0</td>
<td>88.0</td>
<td>65.2</td>
</tr>
</tbody>
</table>

RESULTS

The results of our last 6-month period are summarized in Table I.

LABORATORY PROCEDURES

The medium used for preincubation, insemination, and culture of oocytes was Earles' medium (GIBCO Laboratories, Grand Island, NY) supplemented with 2.11 g NaHCO3, 3.7 ml sodium lactate (60% syrup; Sigma Chemical Co., St. Louis, MO), 30 mg sodium pyruvate (Sigma), and 50 mg gentamicin sulfate (Abic Pharmaceutical Co., Tel-Aviv, Israel) per liter. The final osmolality was adjusted to 280–295 mosmol/kg and the medium was filter sterilized. Before use, all media were gassed with 5% CO2 in air to adjust the pH to 7.1–7.3.

Oocytes and embryos were cultured at 37°C in 250-μl drops of medium under paraffin oil (BDH Chemicals Ltd., Poole, England), in a humidified atmosphere of 5% CO2 in air. For oocyte preincubation and insemination, 10% (v/v) heat-inactivated patients’ serum was added to the medium. For embryo culture, the medium contained 18% (v/v) heat-inactivated patients’ serum.

On recovery, oocytes were preincubated for 5–15 hr before insemination with 1–5 × 10⁵/ml motile spermatozoa.

EMBRYO TRANSFER

Embryos were transferred to the women in the lithotomy position, 40–70 hr after insemination.

Two types of catheters were used: the Wallace embryo transfer catheter (H. G. Wallace Ltd., Colchester, England) and the Katz catheter, 1.13-mm-i.d. and 1.95-mm-o.d. PTFE Teflon tube with an expanded and rounded tip, made in Israel.

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Brief Report of Activity Within the 6-Month Period Between January 1, 1983, and June 30, 1983, in Vitro Fertilization and Embryo Transfer Program

The in Vitro Fertilization and Human Embryo Transfer Program of the Department of Obstetrics and Gynecology of the University of Miami Medical School, with T. T. Hung, M.D., Ph.D., as Program Director, was initiated on January 1, 1983. Even though the outpatient surgical facility as well as the in vitro tissue culture laboratory had been completed, the first few months were devoted entirely to performing basic experimentation and quality-
control study which relied on the mouse embryo system and hamster egg system. We did not start to perform the procedure on patients until the beginning of April.

The criteria for selection of patients are as follows: patients suffering from irreparable tubal disease, patients with unexplained infertility for more than 4 years, and patients with oligospermic husbands in whom conventional treatment had failed.

Before admission to the program, the patients underwent a thorough physical examination to rule out any medical, surgical, or psychological problems which might contraindicate the procedure. The previous infertility workup was also reviewed and any further tests were ordered to complete the workup. A normal semen analysis was obtained within 3 months preceding the procedure and the patients received an information brochure describing the procedure in detail and an informed consent form. The couple was also carefully interviewed by a staff member of the program team.

Induction of ovulation was based on three regimens.

(i) **Clomid Regimen.** The patient received 150 mg of Clomid per day for 5 days starting on day 3 to day 7 of the cycle, depending on the length of her cycle. The day after the last Clomid pill the patient was asked to come to the clinic on a daily basis for ultrasonic sector scanning to monitor follicular growth and rapid radioimmunoassay for serum estradiol. The result of the serum estradiol was usually obtained within 5 hr after the collection of the samples. The timing for human chorionic gonadotropin (HCG) administration was based on the diameter and the rate of growth of the follicles and the level of the serum estradiol. Five thousand units of HCG was then administered to the patient at about 9:00 PM and the laparoscopy was scheduled 36 hr later.

(ii) **Human Menopausal Gonadotropin (HMG)/HCG Regimen.** The patient received between 1 and 3 ampules of HMG starting on day 3 of her cycle. When serum estradiol was above 200 pg/ml, daily sector scanning of the follicle was performed. Criteria for timing the HCG were similar to those in the Clomid regimen.

(iii) **Clomid Plus, HMG/HCG Regimen.** The patient was primed with Clomid for 5 days, followed by HMG. The amount of HMG varied, depending on the serum estradiol level.

The laparoscopy procedure was done on an outpatient basis in a specially designed surgical facility where we have absolute priority regarding scheduling and manpower. The operating room staff as well as the anesthesiologist have been trained especially to be familiar with the procedure. General anesthesia is normally given to the patient. The patient’s abdomen and perineum were prepped with Betadine, washed three times with isotonic saline, and then rewashed with buffer to prevent any contamination of the anesthetic agent. The cervical canal was gently dilated with a small dilator in order to detect any cervical stenosis, which may interfere with future implantation of the embryo. The vagina was then packed with wet pack to elevate and stabilize the uterus. No instrument was applied to the cervix. The abdominal cavity was filled with CO₂ gas; an operating laparoscope was used during the procedure. A second puncture was needed in order to stabilize the ovary by grasping the uteroovarian ligament with an atraumatic forceps. Lysis of adhesions can be performed via the operating laparoscope, if needed. This aspirating needle was a 14-gauge Teflon-lined needle designed by Doctor Alan O. Trounson of the Monash University team, Melbourne, Australia (1). The Teflon needle was connected to a collecting tube which was prerinsed with culture medium containing heparin. Vacuum was created by a suction machine and the vacuum was adjusted to 100 mm Hg throughout the procedure. The application and release of the vacuum were regulated by using a T-shaped adaptor which was designed especially for this purpose. The collecting tubes were kept in a warming bag at 37°C. In some cases, after aspiration, the follicle was flushed with the culture media. The culture medium was modified Ham F10 medium supplemented with 24.5 mg of calcium lactate and bicarbonate (Calbiochem, San Diego, CA), 50 units of penicillin G, and 50 mg of streptomycin sulfate per 100 ml of medium. The culture medium was supplemented with 7.5% decomplemented preovulatory serum. Human preovulatory serum was heated in a water bath at 56°C for 0.5 hr and then centrifuged at 2000g for 15 min, and the supernatant was removed and frozen for further use as a decomplemented preovulatory serum. The oocyte was then graded for degree of maturity based on Testar’s classification (2). The preincubation period varied between 7 and 35 hr, depending on the maturity of the oocytes. After the preincubation period, insemination was performed. The semen was obtained earlier, usually