



obtained with two preincubation periods of oocytes (3 h or 4 h) before the insemination procedure with blastocyst stage transfer.

Materials and Methods

Patients

This study is a retrospective nonrandomized study based on secondary analysis of data obtained from 118 cycles of IVF and ICSI at the Laboratory of Assisted Reproduction of Alcivar Hospital (Guayaquil, Ecuador) during the period January 2009 to December 2010. This study was approved by the Institutional Review Board (IRB) and the corresponding Ethics Committee at the Alcivar Hospital (Guayaquil, Ecuador).

The evaluated groups were formed for those patients whose oocytes after retrieval were inseminated at 1-3 h (Group I) or 4-6 h (Group II). The age range of the patients was 26-41 year old in both groups. All embryo transfers were made at blastocyst stage.

Controlled ovarian stimulation and oocyte collection

The menstrual cycles of patients were stimulated using recombinant FSH (rFSH) (Puregon® Organon Laboratories, Ecuador), HMG (Meriona®, IBSA Laboratories, Ecuador) and GnRH antagonist (Orgalutran® Organon Laboratories, Ecuador) according to the stimulation protocols previously established and starting on Day 2 of the menstrual cycle until at the least three follicles reached ~18 mm in diameter. The oocyte retrieval was performed by vaginal ultrasound 36 h after IM application of hCG (Pregnyl® 10,000 UI, Organon Laboratories, Ecuador). For the procedure, the patient was under general anesthesia with 200 mg of Propofol IV (Dipriva® P/V;

six hundred ninety six oocytes from group II were inseminated. There was no difference in the number of inseminated (IVF) or injected (ICSI) oocytes in both groups evaluated (data not shown). The normal fertilization (2PN) was similar in both evaluated groups (Group I: 83.6% vs. Group II: 78.1%; P:NS). In group I, the cleavage rate by embryo at Day 3 was 95.1%, whereas in group II it was 97.1% (P:NS). Embryos from group I had mean cell numbers at Day 3 significantly higher compared to those embryos from group II (P<0.05). Embryo quality derived from oocytes that were inseminated 1-3 h was similar to those that were inseminated at 4-6 h (76.0% vs. 80.1%). Blastocyst development rates were similar in both study groups (31.1% vs. 39.1%). In addition, embryos reaching the blastocyst stage were morphologically similar in both groups.

Clinical outcomes are shown in Table 2. The mean value for blastocysts was significantly lower for the patients of group I than those for the patients of group II (2.41 ± 1.78 vs. 3.37 ± 2.03 ; P<0.05). In group I, a total of sixty nine blastocysts were transferred to 35 patients with a mean value of 1.97 blastocysts. In group II, a total of one hundred seventy one blastocysts were transferred to 35 patients with a mean value of 2.06 blastocysts. The mean quality values of blastocysts transferred was similar in both analyzed groups (P:NS). Cytoplasmic maturation encompasses a wide array of metabolic and

The patients of group I compared with group II had significantly higher clinical PR (22.9% vs. 53.0%; P<0.05) and IR (13% vs. 38.1%; P<0.05) respectively. Miscarriage and biochemical pregnancy rates were similar in both groups (P:NS). For group I, one and two gestational sacs were observed in seven (87.5%) and one (12.5%) patients respectively. For group II, one and two gestational sacs were observed in twenty eight (63.6%) and sixteen (36.4%) patients respectively. These percentages were similar in both evaluated groups (P:NS).

Discussion

Complete nuclear and cytoplasmic maturation of oocytes is essential for the activation of oocytes at fertilization and the development of embryos [28]. An oocyte is considered to reach nuclear maturity when its meiosis is arrested again at MII with the presence of an extruded first polar body. However, nuclear and cytoplasmic maturation are acquired independently during oocyte maturation [1,29].

